Messages matter: How voter education campaigns affect citizens' willingness to vote for women Replication Codes

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Abstract

Governments and organizations around the world pour money into campaigns designed to increase female political representation, including voter education campaigns. But do such campaigns promote women in politics? We argue that where single-member district contests and clientelism incentivize voters to support viable candidates - who are both likely to get elected and to perform well once in office - information about discrimination against women can undercut support for women in elections. Instead, messages that stress women candidates' electoral viability and political successes are more effective. We work with one of the longest-running voter education campaigns, Malawi's 50:50 campaign, to combine randomized exposure to campaign videos with a conjoint experiment and text analysis of respondents' answers to open-ended questions. We find that exposure to a campaign message makes participants more willing to vote for a woman. But, in line with our argument, a campaign message that includes information about the progress of women in politics has a stronger positive effect than one that discloses information about discrimination against women candidates.

Word count: 10,035

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```
## install and load required R packages for analysis

# install.packages('pacman')
pacman::p_load(tidyverse, kableExtra, Rmisc, ggthemes, gridExtra, vtable,
 ↪  lubridate,
    stargazer, estimatr, texreg, stm, ggpubr, cowplot, formatR, psych, tm)

## create a global theme for plots

plottheme <- theme(axis.title = element_text(face = "bold", size = 22,
 ↪  colour = "black"),
    legend.title = element_text(face = "bold"), panel.background =
     ↪  element_blank(),
    panel.border = element_rect(size = 2, fill = NA), legend.key =
     ↪  element_rect(fill = "white"),
    axis.ticks = element_line(size = 2), axis.line = element_line(size =
     ↪  1, linetype = "solid"),
    axis.line.y.right = element_line(size = 2, linetype = "solid"), title
     ↪  = element_text(family = "serif",
        size = 24, colour = "black", face = "bold"), axis.text.y =
         ↪  element_text(family = "serif",
        size = 24, colour = "black"), axis.text.x = element_text(family =
         ↪  "serif",
        size = 24, colour = "black"), legend.text = element_text(size =
         ↪  18), strip.text.x = element_text(size = 14,
        face = "bold"), panel.grid.major.y = element_line(colour = "gray",
         ↪  size = 0.5),
    panel.grid.major.x = element_line(colour = "gray", size = 0.5),
     ↪  panel.spacing = unit(2,
        "lines"))


## Gives count, mean, standard deviation, standard error of the
 ↪  mean, and
## confidence interval (default 95%).  data: a data frame.
 ↪  measurevar: the
## name of a column that contains the variable to be summariezed
 ↪  groupvars: a
## vector containing names of columns that contain grouping
 ↪  variables na.rm: a
## boolean that indicates whether to ignore NA's conf.interval:
 ↪  the percent
```

```r
## range of the confidence interval (default is 95%)
summarySE <- function(data = NULL, measurevar, groupvars = NULL, na.rm =
↪  FALSE, conf.interval = 0.95,
    .drop = TRUE) {
    library(plyr)

    # New version of length which can handle NA's: if na.rm==T,
    ↪  don't count
    # them
    length2 <- function(x, na.rm = FALSE) {
        if (na.rm)
            sum(!is.na(x)) else length(x)
    }

    # This does the summary. For each group's data frame, return
    ↪  a vector with
    # N, mean, and sd
    datac <- ddply(data, groupvars, .drop = .drop, .fun = function(xx,
↪  col) {
        c(N = length2(xx[[col]], na.rm = na.rm), mean = mean(xx[[col]],
        ↪  na.rm = na.rm),
            sd = sd(xx[[col]], na.rm = na.rm))
    }, measurevar)

    # Rename the 'mean' column
    datac <- rename(datac, c(mean = measurevar))

    datac$se <- datac$sd/sqrt(datac$N)  # Calculate standard error of
↪  the mean

    # Confidence interval multiplier for standard error Calculate
    ↪  t-statistic
    # for confidence interval: e.g., if conf.interval is .95, use
    ↪  .975
    # (above/below), and use df=N-1
    ciMult <- qt(conf.interval/2 + 0.5, datac$N - 1)
    datac$ci <- datac$se * ciMult

    return(datac)
}
```

```r
# load conjoint data

master <- read_csv("mm_conjoint_data.csv")

## Load individual level data

psat <- read_csv("mm_respondent_data.csv")
```

1 Introduction

Despite a global increase in the share of female parliamentarians, women still only comprise 26% of legislators worldwide (IPU 2023). Yet female legislators have been shown to articulate the interests of women, increase public spending in areas that support women's social and economic status, and act as role models for women's political participation (Bauer and Britton 2006; R. Campbell, Childs, and Lovenduski 2010; Clayton et al. 2020; Clayton and Zetterberg 2018; Wängnerud 2009). Governments and organizations around the world have therefore poured money into campaigns designed to increase women's political representation. Such campaigns have been fielded in contexts as diverse as Argentina, Brazil, the Czech Republic, Liberia, Malawi, Scotland, Turkey, and the United States. These efforts include providing financial support and technical training to increase the pool of women candidates (supply) as well as voter education campaigns to motivate citizens to vote for women (demand).

We analyze the effects of the voter education component of gender campaigns. While prior studies have explored the effect of gender campaigns on the *supply* of women candidates (e.g., of gendered election financing (Bauer and Darkwah 2020; Gaunder 2011; Happy M. Kayuni and Muriaas 2014; R. Muriaas, Mazur, and Hoard 2022) and candidate training (Dittmar 2015; Piscopo 2018; Rozell 2000; Sanbonmatsu 2015)), less is known about how they affect voters' *demand* for women in politics. We study whether some types of campaign messages are more likely than others to motivate voters to support women candidates.

A typical gender campaign contains two different types of messages: it informs voters about (1) the *capabilities* of women to become political leaders and (2) the *discrimination* faced by female candidates (ODIHR 2014, 138–39). The *capability* message, which seeks to change voters' perceptions of women's leadership abilities, is important, but we expect that its effect may be weak. Although recent findings on voters' bias against women are mixed (Aguilar et al. 2015; Blackman and Jackson 2021; Clayton et al. 2020; Dahl and Nyrup 2021; Kage, Rosenbluth, and Tanaka 2019; Kao and Benstead 2021; Ono and Burden 2019; Schwarz and Coppock 2022; Teele, Kalla, and Rosenbluth 2018), prior research argues that when voters favor male candidates, this preference stems from deeply held gender norms that deem women less suitable for politics (e.g., Paxton and Kunovich (2003), Norris and Inglehart (2009), Bos et al. (2022)). Moreover, studies on civic education have shown that voter education campaigns have a limited impact on citizens' deeply held norms and beliefs (Finkel 2014; Finkel, Horowitz, and Rojo-Mendoza 2012).

The *discrimination* message is intended to speak to voters' morality and provides information about discrimination against women candidates. However, we argue that this message is potentially counterproductive. Research has shown that strategic voters are reluctant to "waste" their votes on candidates with a low probability of winning or who are unlikely to wield influence if elected (Adida et al. 2020; Chandra 2007; Conroy-Krutz 2013; Cox 1997). In low-information environments, voters use heuristics to discern which candidates are likely to win and deliver spoils to their communities after the election (Bratton, Bhavnani, and Chen 2012; Conroy-Krutz 2013; Kramon 2016; Muñoz 2014). If voters learn that women are discriminated against by other voters or by political elites, they may be reluctant to support them for strategic reasons (see also Bateson 2020 on strategic discrimination). Thus, the *discrimination* message may make individuals less likely to vote for women.

We develop a new type of campaign message, which adds information about the *progress* made by female politicians, including increased parliamentary representation and successful political careers. We argue that factual, positive information about women's achievements counters the

narrative of discrimination, signals women's viability in politics and helps convince voters that supporting women candidates is a strategically wise choice.

To test the effect of voter education campaigns, we worked with a prominent, real-world gender campaign, Malawi's 50:50 campaign. Like many new democracies, Malawi combines a disproportionate electoral system and high levels of clientelism. In this context, voters will be attuned to candidate viability, both in terms of winning elections and navigating intra-elite competition for centralized resources. Discrimination would impede such viability.

Study participants (n = 2,239) were randomized into one of three groups. Respondents in both treatment groups were shown a different animated video, designed in collaboration with the 50:50 campaign to approximate actual campaign videos. After seeing the video, they took part in a forced-choice conjoint experiment that asked them to choose between candidate pairs that varied on multiple dimensions including gender. Rather than testing the separate effects of each message, we developed two compounded campaigns to closely reflect a realistic voter education campaign. Both campaigns were opened with the capability message, which the 50:50 campaign includes in all its material. In the first campaign treatment, we supplemented the capability message with the message on discrimination, as is common practice in the 50:50 campaign interventions. In the second treatment, we left out the discrimination aspect and instead combined the capability message with our new message on the progress of women in politics. We thus compare the original *discrimination* message with a new *progress* message, while holding the identical *capability* message in both campaigns fixed. Participants in the third (control) group were shown a non-political video advertising a product.

Our results demonstrate that exposure to either of the compounded voter education campaigns increases voters' willingness to vote for women. But messages matter: the positive effect (compared to the control group) is significantly stronger for respondents who watched the video emphasizing the *progress* of women in politics than it is for those who saw the video that highlighted *discrimination* against women.

We perform additional tests to demonstrate that respondents exposed to the discrimination message were indeed more likely than those who heard the progress campaign to recall information about women being discriminated against. Moreover, participants exposed to the video that included the progress message were more likely to believe that others in their constituency would vote for a woman. They were also more likely to focus on women's capabilities when asked what they learned from the animation. These additional analyses lend support to our argument that messages matter in strategic voting calculations.

Our findings have implications for the literature on women's descriptive representation (Blackman and Jackson 2021; Clayton et al. 2020; Fox and Lawless 2004, 2010; Kao and Benstead 2021; Schwarz and Coppock 2022; Teele, Kalla, and Rosenbluth 2018; e.g., Wängnerud 2009). They also bolster the insights from the emerging literature on strategic discrimination against women (Bateson 2020). However, our results suggest that campaigns can manipulate perceptions of viability to increase women's representation and combat the negative effects of strategic discrimination. They also inform our understanding of gender campaigns and civic education more broadly (Cheeseman and Peiffer 2022; Finkel and Smith 2011). While civic education has a finite ability to influence deep-seated norms and stereotypes, it can still shape political behavior that is affected by such stereotypes by changing voters' rational calculations. Our findings also have important implications for designing gender campaigns: we recommend that future campaigns should highlight increases in women's representation.

2 Gender campaigns and the demand for female politicians

Campaigns designed to increase women's political representation, often carried out by civil society organizations, seek to increase either the *supply* of women candidates or the *demand* for them by voters and political party elites (ODIHR 2014). Whereas some campaigns emerge for

a particular election and focus on specific tasks, others, like the 50:50 campaign in Malawi, are ongoing and employ a myriad of tools to support both supply and demand.

The voter education components of gender campaigns attempt to alter vote choice "by raising awareness among the electorate and political stakeholders about the barriers women face in political and public life; by educating the public about women's political contributions; [or] by working to combat gender-based stereotypes about women's political capacities" (ODIHR 2014, 138–39). For instance, the 50:50 campaign video for Malawi's 2019 elections features two men having a conversation ridiculing women in politics and stressing the need for male leaders, before a third man highlights the many qualities possessed by women politicians and encourages to support them.[1] In other words, campaigns typically build on two important messages—what we label *capability* and *discrimination* messages.

Capability messages seek to convince voters that women are qualified candidates for political office by highlighting their contributions, such as quelling corruption or delivering development, or more generally asserting that women have the same leadership capabilities as men. *Discrimination* messages inform citizens of the barriers women face to entering politics, such as harassment by opponents or voters or a lack of support from political parties. Such messages aim to trigger a sense of moral obligation among voters to counteract discrimination.

We argue that voter education campaigns have the potential to change individuals' propensity to vote for women candidates, but that the campaigns' specific messages influence how effective they are. We theorize on the effect of a typical campaign (which combines messages about women's capabilities and the discrimination they face). We then develop an alternative campaign that combines messages about women's capabilities and their recent progress in politics, stressing both their increased popularity amongst voters and their advancement into higher political offices, to counter the narrative of voter and elite discrimination of women. (Figure 1).

[1] See: < https://www.facebook.com/5050campaignmalawi/videos/254335358495557/>

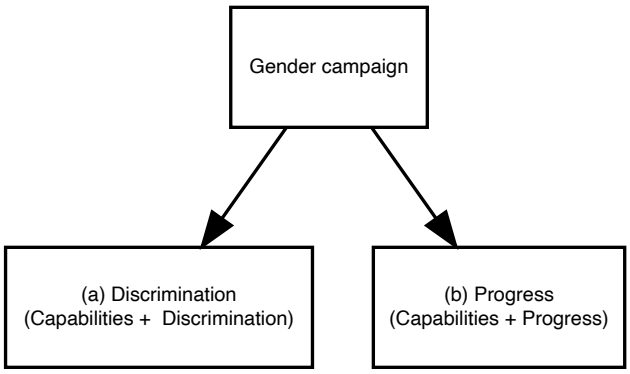

Figure 1: Gender campaign types

We argue that campaigns can primarily affect the likelihood of voting for a woman by updating recipients' beliefs about: (1) candidate qualifications and (2) candidate viability (Figure 2). Naturally, a host of other factors—including policy positions, partisanship, and candidates' social characteristics—also influence vote choice McDermott (2005). However, we control for these factors since gender election campaigns do not manipulate them.[2]

How can the typical gender campaign, which combines messages on women's *capabilities* in politics and the *discrimination* they face, affect vote choice? These campaigns are based on the hope that informing voters that women are capable politicians will provide new information to undercut existing biases. A common explanation for citizens' reluctance to vote for women candidates is conservative gender norms which maintain that women's main role in society is having and raising children rather than political leadership (Norris and Inglehart 2009; Paxton and Kunovich 2003). Moreover, gender stereotypes may lead voters to believe women are less competent, less assertive, and less suited to handle crises (Dolan 2014; Lawless 2004). Societies with more conservative gender norms have been shown to elect fewer women to parliament (Norris and Inglehart 2009; Paxton and Kunovich 2003), and voters with traditionalist views are less likely to choose female candidates in conjoint candidate choice setups (Blackman and Jackson 2021).

[2]We acknowledge that beliefs about a candidate's capabilities can cause voters to update their assessment of their viability (and vice versa). However, this does not affect our hypotheses.

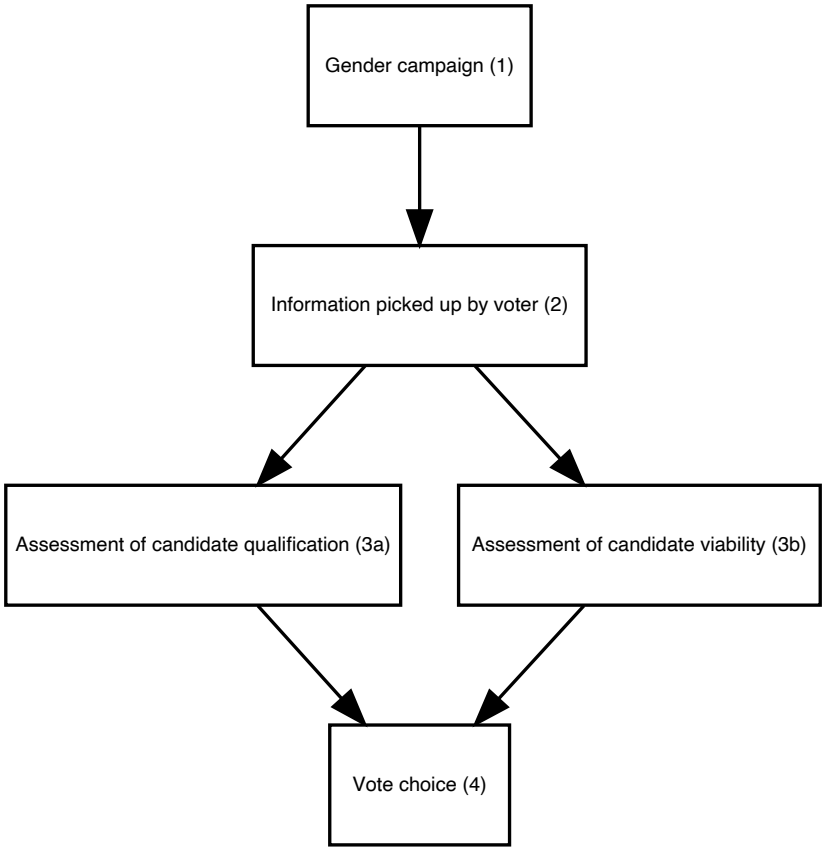

Figure 2: Causal model: How gender campaigns affect vote choice

However, voter beliefs about women in politics may not be easily updated. Bos et al. (2022) find that stereotypes deeming men more fit for politics are ingrained from childhood. Research on gender campaigns is scarce, but studies on the broader effect of civic education campaigns find that civic education has stronger effects on knowledge and participation than on deeply held norms (Bratton et al. 1999; Collier and Vicente 2014; Finkel 2002, 2014; Grácio and Vicente 2021). Thus, presenting voters with the capability message could make them more likely to vote for a woman by updating their beliefs about candidate capability (3a in Figure 2), but prior research suggests the effect would be small.

How do voters respond to the *discrimination* message included in typical gender campaigns? Past studies have argued that exposure to discrimination can motivate women to mobilize (Bankert

2020), and that increased awareness of discrimination can spur a more conscious promotion of gender interest, particularly among women voters (Huddy and Carey 2009), including increased support for gender quotas (Sanbonmatsu 2003). However, we do not know the extent to which increased knowledge of discrimination will enhance men's and women's propensity to vote for women. We discuss the potential positive effect of discrimination information on motivating voters to support women in the results section, but we expect it to be outweighed by the strategic logics discussed below.

We argue that voter education campaigns may work by updating beliefs about a candidate's ability to get elected and to become an influential parliamentarian (3b in Figure 2). Voters rely not only on "sincere" candidate preferences, but also on strategic calculations. Cox argues that "strategic voting will generally transfer votes from objectively weaker (vote-poorer) to objectively stronger (vote-richer) candidates" (Cox 1997, 72) because the expected utility of voting for an unviable candidate is low. Strategic voting is particularly important in restrictive electoral systems that limit the number of viable candidates, such as single-member districts (SMDs) (Cox 1997; Fey 1997; Tavits and Annus 2006).

In clientelist elections, the dynamic is even stronger. When deciding among candidates, voters consider the credibility of clientelistic promises (Wantchekon 2003). Thus, voters defect from trailing candidates (Greene 2007; Magaloni 2006) and may coordinate within communities to support candidates who are likely to gain access to spoils that can be distributed among supporters individually or at the constituency level (Adida et al. 2020; Bratton, Bhavnani, and Chen 2012). In clientelistic elections, voters may desert co-ethnic or more capable candidates if they are perceived to be unviable (Chandra 2007; Conroy-Krutz 2013; Koter 2016). However, gauging candidate viability can be difficult; particularly in low-information elections, voters will use cues to determine which candidate to vote for (McDermott 2005).

We argue that typical voter education campaigns that inform citizens about discrimination against women either by voters or political elites give voters a viability cue. In the United States,

Bateson finds evidence of strategic discrimination: party gatekeepers and voters in primaries are reluctant to support women and people of color as they expect them to be less likely to win (Bateson 2020). We theorize that such education campaigns may strengthen negative responses to women candidates because the discrimination message signals that women are unviable candidates facing opposition from parties and other voters (i.e., discrimination). Even voters who are open to supporting a female candidate may refrain from doing so when reminded that patriarchal societal structures both at the voter and the elite level impede women's political advancement.

In sum, we argue that even if the *capability* message has a slight positive effect on voters' willingness to support women by increasing their beliefs about women's capabilities, this effect is likely to be undermined by the stronger negative effect of the *discrimination* message, which weakens voters' beliefs about women's viability.

We suggest an alternative campaign that complements the *capability* message with a different type of message about the recent *progress* made by women in politics. To signal women's electoral viability, we inform voters of women's increased presence in politics, including higher numbers of female members of parliament (MPs) and women taking up more senior positions. These two pieces of information should counter stories of mass and elite level discrimination against women in politics as they indicate support from both voters and party elites. We expect the *progress* campaign to have a positive effect since it combines (1) the potential positive effect of campaigns on voters' capability assessments with (2) a positive effect on viability assessments.

Our pre-specified hypotheses are as follows:

H1: Respondents exposed to discrimination messages are less likely to select female candidates than those who do not receive a gender campaign message.

H2: Respondents exposed to progress messages are more likely to select female candidates than those who do not receive a gender campaign message

H3: Respondents exposed to progress messages are more likely to vote for a female candidate compared to those presented with the discrimination message.

3 Context: Women's political representation and gender campaigns in Malawi

We study the effectiveness of gender campaigns in Malawi for four reasons. First, women's role in politics in the country ensures that our study is relevant and the treatments genuine. Women's representation in parliament remains low, but close to the world average of 26% (IPU 2023) and conservative gender roles prevail (Amundsen and Kayuni 2016). Violence and harassment during campaigns are common (Semu-Banda 2008), and women candidates are disadvantaged by political rivals' use of negative gender stereotypes Clayton et al. (2020). Women MPs are less likely than men to speak in parliament (Wahman, Frantzeskakis, and Yildirim 2021), the share of female ministers has been consistently lower than the share of female MPs, and when women are appointed to cabinet, it has often been to "soft" gendered portfolios like the ministry of gender or health (Bauer and Okpotor 2013). Political parties in Malawi display limited interest in diversifying their candidate pools (Happy Mickson Kayuni and Chikadza 2016), party primaries are often manipulated to systematically disadvantage women candidates, and self-funding of political campaigns excludes many women from politics altogether (Wahman and Seeberg 2022). As in many other contexts, voter education campaigns are partly designed to compensate for the low supply of female candidates. In Malawi, women do not fair worse than men once they are on the ballot, but the low prevalence of female candidates means that women would need to significantly outperform men to achieve equal representation.

Nevertheless, female parliamentary representation has increased from 7% in 1994 to 23% in 2019. The predominantly matrilineal culture of Southern and Central Malawi has granted women political and economic rights, and the country has a long tradition of female chiefs (R. L. Muriaas, Wang, and Murray 2019; Phiri 1983; Robinson and Gottlieb 2021). Importantly, Malawi has had women representatives at the top of the government hierarchy, both as president (2012–2014) and

speaker of parliament (since 2019). The combination of severe under-representation and substantial progress makes our treatments consistent with voters' experience.

The second reason we chose this case is that Malawi combines a first-past-the-post SMD electoral system, which encourages strategic voting behavior, with clientelistic politics (Ejdemyr, Kramon, and Robinson 2018; Jöst and Lust 2022). Parliamentary elections are also highly competitive. The average candidate in the 2019 parliamentary election won only 46% of the constituency vote, the average number of effective candidates at the constituency level was 3.4, and the average winning margin was 20 percentage points. Independent candidates also do very well, so even candidates for regionally dominant parties face viable challengers (Wahman and Brooks 2022). The combination of competitive SMD elections and clientelism is a scope condition for our argument.

Third, Figure 3 illustrates that Malawi is a typical contemporary multiparty democracy with SMD elections in terms of its levels of women's representation and clientelism, which increases the applicability of our results to other countries.[3] Among these countries, the average female representation in the lower house is 20% compared to 23% in Malawi. Malawi's degree of clientelism (0.43) is also close to the sample average (0.55).[4]. We thus have no reason to believe that Malawian voters would be particularly hard or exceptionally easy to persuade with voter education campaigns.

[3]We used V-Dem data and included countries that met three conditions. (1) The average district magnitude was smaller than 1.5 (to also include rare cases in which some districts were multi-member, but most were SMD) (data from Coppedge et al. (2022), v2elloeldm). (2) The linkage between parties and voters (for the major party) was coded as clientelistic, mixed clientelistic and local collective, local collective, or mixed local collective and programmatic (v2psprlnks_ord). (3) There were multiple parties (excluding "no" and "not really" on V-Dem's multipartyism indicator v2elmurpar_ord). Data are from the election year closest to 2021.

[4]The V-Dem clientelism index ranges from 0 (low) to 1 (high) and accounts for levels of vote buying, particularistic vs. public goods, and party linkage.

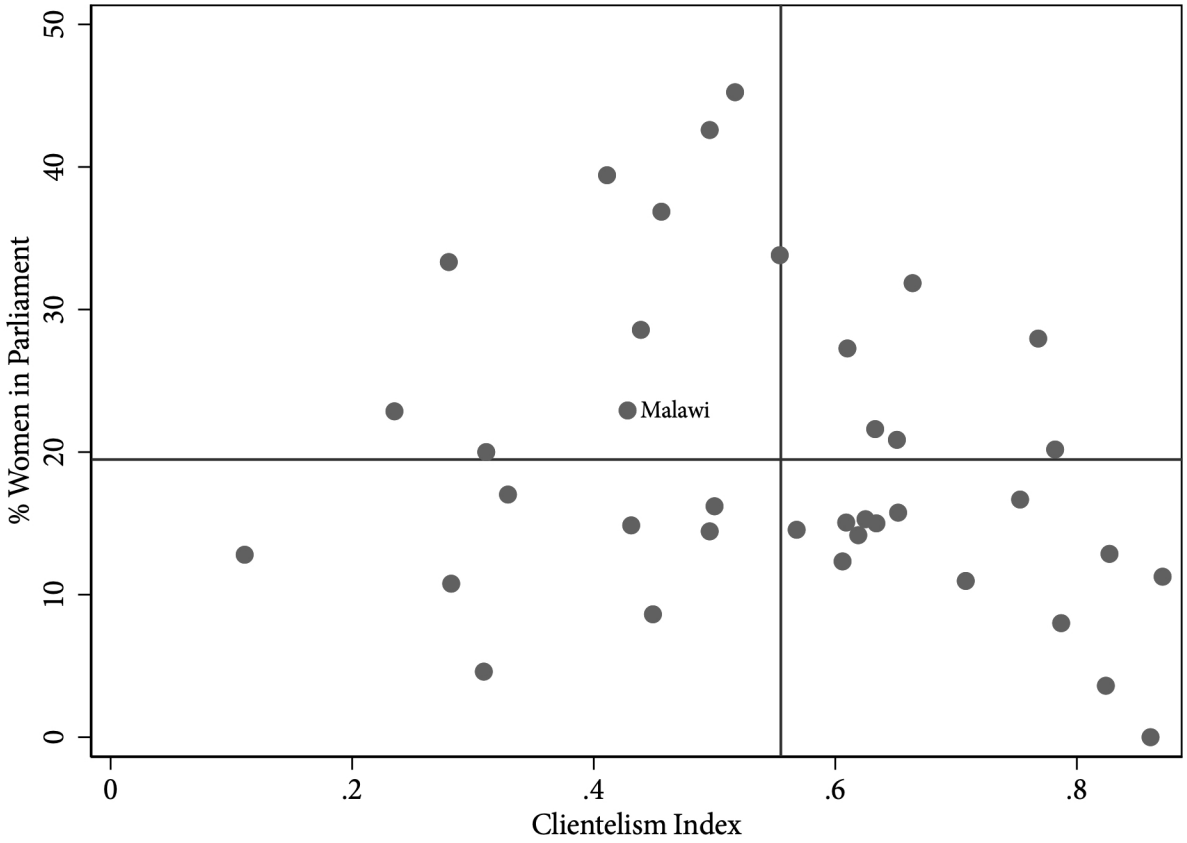

Figure 3: Case selection

Note:Data from V-Dem for the year 2021. Sample of clientelistic multiparty states with SMD elections.

Finally, Malawi has a long tradition of running voter education campaigns to promote women in politics. International donors have invested in interventions in every election since 2009 to reduce some of the hurdles faced by women running for office (Chirwa-Ndanga and Maganga 2022; Happy M. Kayuni and Muriaas 2014). We worked closely with the organizations implementing the campaign in the 2019 parliamentary election to produce an authentic and externally valid experiment.

4 Research Design

4.1 Experimental design

To test our theoretical expectations, we randomly exposed respondents to different election gender campaigns in an original survey to estimate their causal effects. We partnered with Malawi's Center for Civil Society Strengthening to design two animated videos that closely mirror the messages described in the theory section but also reflect the original 50:50 campaign: (1) the *discrimination* campaign, which includes capability and discrimination messages and (2) the *progress* campaign, which includes capability and progress messages. We strived to include the 50:50 in the design of the treatments. While the research team gave clear directions on what general message should be communicated in each video, the 50:50 campaign was asked to suggest language and examples that would be culturally relevant and resonate with participants. ˆ [We did not pre-validate the treatments in representative focus group discussion, but we believe that the 50:50 Campaign's long experience of voter education enabled them to communicate the messages with high validity. The messages were also validated in consultation with the supervisors at our survey company, IPOR. Below, we also proceed to test respondents' takeaways from the treatments via answers to an open-ended question.]

Following the 50:50 campaign's formula, both videos feature a conversation between two male voters in a rural setting. [5] Both begin with an identical capability message: the men talk about the development accomplishments of the female MP in a neighboring constituency, and how women MPs are dedicated and less prone to corruption.[6]

[5] 50:50 campaign material typically features endorsements of women candidates made by men, who are considered authority figures and hoped to be more likely to convince voters. However, future studies could test the effect of both gender and position of the endorser (R. L. Muriaas et al. 2019).

[6] We refer to a female legislator in a neighboring constituency to make our treatment factually correct across constituencies, of which only some will actually have a female representative. Nonetheless, Appendix Table E.5 also shows that our main results do not vary across constituencies with or without a female MP or constituencies which did or did not have one in the past.

The discrimination video adds a conversation about the harassment and lack of party support experienced by another fictitious female MP in their own constituency to signal discrimination against women by voters as well as political elites. E.g., the men say "They don't think people will vote for a woman. Instead, the party has resorted to supporting that male independent candidate" and "Women have it tough in politics! Parties don't give them resources and they face harassment and prejudice. This is why there are so few of them in parliament."

The progress video excludes the discrimination message and instead adds information about two recent aspects of the progress of women in politics. First, they discuss the increase of women in parliament both more generally ("It is all women at the helm and there are more women in parliament than ever") and in their local (fictious) constituency ("And now we have our own woman MP!") to counter messages of voter level discrimination against women. Second, they discuss how women MPs have also risen to higher office ("Women are now leading ministries like Health, Education and Gender" and "I also hear that Mr. Speaker Sir of Parliament is a woman") to combat the narrative of party and elite level discrimination of women in politics. These messages should ensure voters that women are indeed viable candidates, who are not obstructed by mass or elite level discrimination. Finally, both animations end with the slogan "Let's vote for women!"

The animations were voiced by actors in the local language, Chichewa (English scripts are available in Appendix G). The control group saw a non-political, non-gender-based commercial for plastic basins. [7]

[7]Participants watched their assigned videos on a tablet in the presence of an enumerator. Enumerators were encouraged to conduct interviews in private. The videos lasted approximately 1.25 minutes. Our study follows (and extends upon) research that uses in-person video or audio presentations to estimate the causal effects of candidates' debate (Brierley, Kramon, and Ofosu 2020; Platas and Raffler 2021), political endorsements (Arriola, Choi, and Gichohi 2022; Brierley and Ofosu 2023), and vote buying by candidates (Kramon 2016). However, in contrast to these studies that often use direct survey questions to measure outcomes, we use a conjoint survey experiment to mitigate potential researcher demand and social desirability bias in such research designs (see below).

4.2 Measuring outcome: "vote for female aspirants"

We are primarily interested in assessing whether exposure to these campaigns changes voters' choice of women candidates (relative to men), which requires comparing the causal effect of candidate gender across our treatments. To measure the causal effect of being a woman vs. a man candidate, we leverage a forced-choice conjoint survey experiment (Hainmueller, Hopkins, and Yamamoto 2013).[8]. We provided respondents with descriptions of six pairs of hypothetical candidates contesting for MP seats in their constituency. Five attributes characterized these fictitious candidates: gender (woman/man), party affiliation (incumbent/runner-up/independent),[9] policy focus (roads/education/boreholes), education (secondary/university), and profession (maize farmer/business owner/teacher). The values of the attributes for each candidate were random and equally likely (i.e., uniformly distributed (see Appendix Table C.4)), and the order of attributes was randomized to mitigate order effects (but fixed for each participant).

Because participants can prioritize any of the attributes and are not required to explain their decision to interviewers, the method helps mitigate social desirability bias (Horiuchi, Markovich, and Yamamoto 2021). The candidate descriptions were read aloud to respondents while they watched visual symbols corresponding to the fictitious candidate's value on each attribute. [10]

Participants then answered two questions in random order: ($Q1$) Which of these two candidates would you vote for as your MP? (to measure vote choice) and ($Q2$) Which of these two candidates do you think others in your constituency would vote for as their MP? (to assess perceptions of

[8] About one percent (0.7%) of individuals contacted by our enumerators refused to take part in our study. However, once they agreed, respondents completed our survey in full—the brevity of our survey, lasting approximately 30 minutes, accounts for this. Also, because we used a force-choice conjoint survey experiment, which asked respondents to provide their best choice even if they were unsure, attrition is not an issue in our study

[9] Malawi has a volatile party system with significant levels of party switching and a high success rate of independent parliamentary candidates (Ishiyama, Batta, and Sortor 2013; Young 2014). In 2019, 33% of all elected MPs were independents. Therefore, to assess how a candidate's party affiliation affects vote choice within a constituency, we use the share of votes the parties' presidential candidates received in the 2019 election. We focus on the winner and runner-up parties in each constituency. Accordingly, labels of party attribute values were customized for each constituency.

[10] Appendix Tables D.2 and D.5 show that our main effects do not vary by interviewer gender and whether a participant had a female incumbent. This gives us confidence that interviewer demand or social desirability bias is not a major concern in our study.

candidate viability). Respondents were not allowed a "don't know" option. Our data allow us to estimate the causal effect (i.e., average marginal component effect (AMCE)) of each attribute's values (relative to a chosen baseline) on vote choice (Hainmueller, Hopkins, and Yamamoto 2013). We focus on the change in the probability of selecting a candidate when their gender switches from male to female, averaging over the remaining attributes (Bansak et al. 2022).

A potential concern with the conjoint survey experiment is whether it can capture respondents' valid candidate preferences. Recent research has found that respondents in conjoint candidate choice experiments were more willing to support women candidates than researchers expected (Clayton et al. 2020; Kage, Rosenbluth, and Tanaka 2019; Schwarz and Coppock 2022; Teele, Kalla, and Rosenbluth 2018). Moreover, a survey experiment provides a low-cost environment compared to actual elections, and thus respondents may be less likely to exhibit strategic behavior. Our study circumvents the first problem in two ways. First, unlike previous research, we are interested in how the effect of being a female relative to being a man changes across our treatment groups. Accordingly, potential response biases are held constant across groups. Second, prior research indicates that bias against women may only occur when voters are exposed to discriminatory behavior against women candidates in elections (Clayton et al. 2020). Our study explicitly tests this idea by randomizing respondents' exposure to information about discrimination against women via the 50:50 campaign videos before they participate in the conjoint candidate choice experiment. Regarding the problem of detecting strategic behavior in a survey-context, we note that while it would be ideal to examine how our messages impact behavior in an actual election, it is ethically problematic (for one thing, because we expect an adverse effect of the discrimination treatment). Also, as we show, even in this low-cost environment of our survey, respondents appear to reduce their support for female candidates when exposed to our discrimination treatment rather than a progress message.

4.3 Estimating the causal effects of gender campaigns

To test our hypotheses, we compare the effect of gender in both of our main treatments (i.e., typical/discrimination campaign and alternative/progress campaign) to the control group as well as between the two treatments. We analyze $Q1$ as our main dependent variable using the following simple ordinary least squares (OLS) regression model with interaction:

$$Y_{ip} = \alpha + \beta_1 * F_{ip} + \beta_2 * D_i + \beta_3 * Pi + \beta_4 * (F_{ip} * D_i) + \beta_5 * (F_{ip} * P_i) + \sum_{j=2}^{n} \tau_j * A_{jip} + \sum \theta * X_i + \gamma_e + \varepsilon_i$$

Y_{ip} is the rated profile p for participant i. F_{ip} is an indicator variable for whether the hypothetical candidate in the conjoint profile is *female*. Individuals are assigned to treatment group $t \in \{\text{control (C)}, \text{progress (P)}, or \text{discrimination (D)}\}$. α is the constant. A_{jip} represents the other four attributes. As pre-specified, we include the background characteristics of our respondents, X_i, to improve the precision of our estimates. Excluding these estimates does not change the results. γ_e represents constituency fixed effects. ε_i is the individual error term. Robust standard errors are clustered at the individual level.

Our quantities of interest are β_4 and β_5, which denote the change in the causal effect of being a *female* candidate when a respondent is assigned to the progress and discrimination messages, compared to the control group, β_1.[11] Because the campaigns were randomized, β_4 and β_5 represent the average treatment effects of the discrimination and progress campaigns, respectively.

Our design does not allow us to estimate the independent effect of the discrimination and progress components of the gender campaigns we evaluate (relative to the capability component,

[11] We use $Q2$ as a partial test of our mechanism to provide further insights into whether the treatments change respondents' perceptions of the viability of women candidates. We expect respondents receiving the progress message to be the most likely to think that others in their constituency would vote for a female politician. Appendix Table D.1 shows that the order in which these two questions were asked did not affect the causal effect of the gender attribute. Thus, the correlation between the two is not merely an effect of respondents rationalizing that others would vote for the candidate they chose for themselves in the previous question.

which is included in both treatments). Distinguishing between the components' effects by further splitting the treatments would be theoretically interesting but departs from real-world campaigns, which always include a capability component. Importantly, however, beyond estimating the effect of the alternative gender campaign (relative to control), our design allows us to compare the two to each other while holding the capability aspect constant. We are thus able to assess the causal effect of the typical gender campaign, which combines capability and discrimination messages, with an alternative campaign that combines information on capabilities with a message about progress in a setup with high external validity.

As we have prioritized the study's external validity by working with an existing campaign, some respondents may be pre-treated, since they may have encountered the campaigns' messages during the 2019 elections. To reduce this risk, we conducted the experiment in 2022, 3 years after the most recent campaign, but well in advance of the 2025 elections. If respondents were pre-treated, they are most likely to have been exposed to the capabilities and discrimination treatment. Our study may thus underestimate the effect, positive or negative, of the discrimination treatment relative to the control group and the effect of the progress message compared to the discrimination message. Nonetheless, randomization ensures that such prior encounters are equally likely across treatments and thus do not pose a threat to our causal inference.

4.4 Sampling and assignment into treatments

We surveyed 2,239 respondents sampled from 12 randomly selected constituencies in Malawi's Central and Southern regions in April and May 2022.[12] Within these selected regions, we excluded the more urban constituencies of Blantyre, Lilongwe, and Zomba. In Malawi, like most African countries (due to demography and malapportionment), the vast majority of constituencies are rural

[12]The appropriate sample size was estimated using a power analysis. Because of significant cultural and linguistic differences between the predominantly patrilineal Northern Region on the one hand, and the predominantly matrilineal Central and Southern regions on the other hand, we focus on the latter two to hold this factor fixed in our study (Clayton et al. 2020).

(93%), and we are interested in making inferences based on these more "typical" constituencies (Boone and Wahman 2015). We randomly selected three administrative districts in Southern Region (Chiradzulu, Phalombe, and Nsanje) and three in Central Region (Nkhotakota, Nchisi, and Salima). In each selected district, we randomly selected two constituencies. Within constituencies, respondents were selected through a random-walk approach modeled after the Afrobarometer (AB) method of household sampling. Malawi's Institute of Public Opinion and Research (IPOR), AB's country partner, implemented our survey. Electoral competition was considerable in the 12 sampled constituencies: the average winner in the 2019 election received 57% of the vote and the average winning margin was 27 percentage points. With significant party volatility and uncertainty from independent candidatures, we would thus expect that voters care about candidates' viability. Within each constituency, IPOR conducted approximately 185 interviews using a gender quota to ensure an equal representation of males and females 18 years or older. Appendix Table B.1 reports the descriptive statistics of the participants, which demonstrate that our sample is fairly representative of the Malawian voting-age population.

Based on a power analysis, respondents were randomly assigned to the control treatment (0.38 probability), discrimination treatment (0.38 probability), or progress treatment (0.24 probability). Appendix Table B.2 shows that our randomization worked well: 872 (39%), 852 (38%), and 515 (23%) of the respondents were assigned to the control, discrimination, and progress treatments, respectively. Moreover, Appendix Table B.1 shows that our respondents were similar across treatments in age, gender, level of education, employment status, wealth (assets), knowledge of politics, and attachment to a political party. However, participants in the discrimination treatment were more likely to report voting in the last election than those in the control or progress treatments. An imbalance on one or two covariates is expected by chance with multiple testing. We therefore control for turnout in the previous election (and other pre-specified covariates) in our analysis.[13]

[13] Appendix Table C.2 also shows that the conjoint attributes' values are not associated with respondents' characteristics, suggesting randomization worked well.

```
## merge conjoint and individual level data (which include
↪  information on treatment assignments)

#names(master)
#names(psat)
master_ps <- master%>%
  left_join(psat,by =c("PARENT_KEY"= "KEY"))%>%
  dplyr::filter(validdata)%>% #filters out pilot data
  dplyr::mutate(party= factor(rd_rand_a_party,
levels = c(0,1,2),
labels = c("Independent", "Minor", "Major")),
promises= factor(rd_rand_a_promises,
levels = c(0,1,2),
labels = c("Boreholes", "Education", "Roads")),
education= factor(rd_rand_a_education,
levels = c(0,1),
labels = c("Secondary", "University")),
gender= factor(rd_rand_a_gender,
levels = c(0,1),
labels = c("Male", "Female")),
profession= factor(rd_rand_a_profession,
levels = c(0,1,2),
labels = c("Teacher", "Maize farmer","Major business owner"))
)%>%
  dplyr::mutate(female_enumerator=ifelse(
    enumerator=="Patience Phiri"|enumerator=="Pemphero
↪  Kadyankhundi"|enumerator=="Lesina Nkhunga"|enumerator=="Grace
↪  Ramundi"|enumerator=="Praise Mandota"|enumerator=="Georgina
↪  Ngaiyaye"|enumerator=="Sylvia Siliya"|enumerator=="Rabecca Nyondo
↪  Matete"|enumerator=="Vanessa Kaulendo",1,0),
    Anytreatment= ifelse(tr_video !="Control",1, 0),
    tr_video_lv=relevel(factor(tr_video),ref = "Low viability")
    )
```

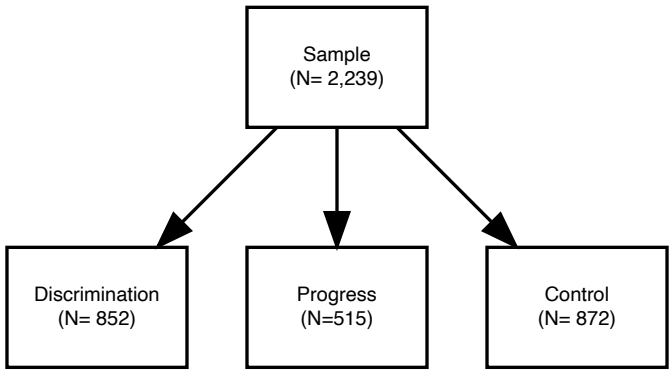

Figure 4: Treatment arms

5 Results

5.1 Do campaigns affect individuals' willingness to vote for women?

```
# Estimates primary results: 'which profile respondent prefer'
↪  (include
# pre-specified controls)

## estimate the average marginal component effects of conjoint
↪  attributes in
## the full sample
rmd0 <- lm_robust(outcome_binary_resp ~ gender + party + promises +
↪  education + profession +
   q5_age + female + primary_or_less + employed + correctMPname +
↪  close_to_a_party +
   turnout_last_elect + total_assets + ethnic_chewa + ethnic_lomwe +
↪  ethnic_yao +
   conservative + female_enumerator, data = master_ps, clusters =
↪  PARENT_KEY, fixed_effects = q2)


## Estimating the treatment effect of gender by gender campaign
↪  Control group

rmd1 <- lm_robust(outcome_binary_resp ~ gender + party + promises +
↪  education + profession +
```

```
    q5_age + female + primary_or_less + employed + correctMPname +
↪   close_to_a_party +
    turnout_last_elect + total_assets + ethnic_chewa + ethnic_lomwe +
↪   ethnic_yao +
    conservative + female_enumerator, data = dplyr::filter(master_ps,
↪   tr_video ==
    "Control"), clusters = PARENT_KEY, fixed_effects = q2)

## Progress treatment group

rmd2 <- lm_robust(outcome_binary_resp ~ gender + party + promises +
↪   education + profession +
    q5_age + female + primary_or_less + employed + correctMPname +
↪   close_to_a_party +
    turnout_last_elect + total_assets + ethnic_chewa + ethnic_lomwe +
↪   ethnic_yao +
    conservative + female_enumerator, data = dplyr::filter(master_ps,
↪   tr_video ==
    "High viability"), clusters = PARENT_KEY, fixed_effects = q2)


## Discrimination treatment group

rmd3 <- lm_robust(outcome_binary_resp ~ gender + party + promises +
↪   education + profession +
    q5_age + female + primary_or_less + employed + correctMPname +
↪   close_to_a_party +
    turnout_last_elect + total_assets + ethnic_chewa + ethnic_lomwe +
↪   ethnic_yao +
    conservative + female_enumerator, data = dplyr::filter(master_ps,
↪   tr_video ==
    "Low viability"), clusters = PARENT_KEY, fixed_effects = q2)


## Gather gender treatment effect in control, progress and
↪   discrimination
## treatment for plotting (Figure 5)

amces <- c(rmd1$coefficients["genderFemale"],
↪   rmd2$coefficients["genderFemale"],
    rmd3$coefficients["genderFemale"])
```

```
amces_se <- c(rmd1$std.error["genderFemale"],
 ↪  rmd2$std.error["genderFemale"], rmd3$std.error["genderFemale"])

mtab_amce = tibble(treat_gr = c("Control", "High viability", "Low
 ↪  viability"), est = amces,
    se = amces_se, point = c(1, 3, 2))




# Estimation for mechanism test: DV: 'which profile respondent
 ↪  believe others
# will prefer' (include pre-specified controls)

## Full sample

rmd0b <- lm_robust(outcome_binary_other ~ gender + party + promises +
 ↪  education +
    profession + q5_age + female + primary_or_less + employed +
 ↪  correctMPname + close_to_a_party +
    turnout_last_elect + total_assets + ethnic_chewa + ethnic_lomwe +
 ↪  ethnic_yao +
    conservative + female_enumerator, data = master_ps, clusters =
 ↪  PARENT_KEY, fixed_effects = q2)

## Control group

rmd1b <- lm_robust(outcome_binary_other ~ gender + party + promises +
 ↪  education +
    profession + q5_age + female + primary_or_less + employed +
 ↪  correctMPname + close_to_a_party +
    turnout_last_elect + total_assets + ethnic_chewa + ethnic_lomwe +
 ↪  ethnic_yao +
    conservative + female_enumerator, data = dplyr::filter(master_ps,
 ↪  tr_video ==
    "Control"), clusters = PARENT_KEY, fixed_effects = q2)

## Progress treatment group
rmd2b <- lm_robust(outcome_binary_other ~ gender + party + promises +
 ↪  education +
    profession + q5_age + female + primary_or_less + employed +
 ↪  correctMPname + close_to_a_party +
```

```
    turnout_last_elect + total_assets + ethnic_chewa + ethnic_lomwe +
↪   ethnic_yao +
    conservative + female_enumerator, data = dplyr::filter(master_ps,
↪   tr_video ==
    "High viability"), clusters = PARENT_KEY, fixed_effects = q2)

## Discrimination treatment group
rmd3b <- lm_robust(outcome_binary_other ~ gender + party + promises +
↪   education +
    profession + q5_age + female + primary_or_less + employed +
↪   correctMPname + close_to_a_party +
    turnout_last_elect + total_assets + ethnic_chewa + ethnic_lomwe +
↪   ethnic_yao +
    conservative + female_enumerator, data = dplyr::filter(master_ps,
↪   tr_video ==
    "Low viability"), clusters = PARENT_KEY, fixed_effects = q2)


## Gather estimates to plot Appendix Figure F.1: 'Average
↪   marginal component
## effect of gender (female) by treatment (whom others
↪   inconstituency would
## vote for (Q2))'

amcesb <- c(rmd1b$coefficients["genderFemale"],
↪   rmd2b$coefficients["genderFemale"],
    rmd3b$coefficients["genderFemale"])

amces_seb <- c(rmd1b$std.error["genderFemale"],
↪   rmd2b$std.error["genderFemale"],
    rmd3b$std.error["genderFemale"])

mtab_amceb = tibble(treat_gr = c("Control", "High viability", "Low
↪   viability"), est = amcesb,
    se = amces_seb, point = c(1, 3, 2))
```

```
# Simple OLS model estimating the AMCEs of the conjoint
↪   attributes without and
# without pre-specified controls provides estimates in the full
↪   model, by
```

```
# whether respondent was assigned to any campaign treatment, and by the
# different types of treatment (using interacting models to estimates the
# differences in AMCEs to test hypotheses)

## Respondent's preferences full sample (without controls)
mod0_ncontrols <- lm_robust(outcome_binary_resp ~ gender + party + promises + education +
    profession, data = master_ps, clusters = PARENT_KEY)

### interacting gender and anytreatment type
rmd_int1_any <- lm_robust(outcome_binary_resp ~ gender * Anytreatment + party + promises +
    education + profession, data = master_ps, clusters = PARENT_KEY)

### interacting gender and the different treatment type
rmd_int1_ncontrols <- lm_robust(outcome_binary_resp ~ gender * tr_video + party +
    promises + education + profession, data = master_ps, clusters = PARENT_KEY)

### interacting gender and including controls
rmd_int1 <- lm_robust(outcome_binary_resp ~ gender * tr_video + party + promises +
    education + profession + q5_age + female + primary_or_less + employed + correctMPname +
    close_to_a_party + turnout_last_elect + total_assets + ethnic_chewa + ethnic_lomwe +
    ethnic_yao + conservative + female_enumerator, data = master_ps,
    clusters = PARENT_KEY,
    fixed_effects = q2)


## Respondent's beliefs about the preferred profile of others in constituency

### full sample
mod0_ncontrols_other <- lm_robust(outcome_binary_other ~ gender + party + promises +
    education + profession, data = master_ps, clusters = PARENT_KEY)
```

```
### interacting gender with any of the treatment
rmd_int1_any_other <- lm_robust(outcome_binary_other ~ gender *
↪  Anytreatment + party +
   promises + education + profession, data = master_ps, clusters =
↪  PARENT_KEY)

### interacting gender and the different treatment type
rmd_int1_ncontrols_other <- lm_robust(outcome_binary_other ~ gender *
↪  tr_video +
   party + promises + education + profession, data = master_ps, clusters =
↪  PARENT_KEY)

### interacting gender and the different treatment type with
↪  controls
rmd_int1_other <- lm_robust(outcome_binary_other ~ gender * tr_video +
↪  party + promises +
   education + profession + q5_age + female + primary_or_less + employed +
↪  correctMPname +
   close_to_a_party + turnout_last_elect + total_assets + ethnic_chewa +
↪  ethnic_lomwe +
   ethnic_yao + conservative + female_enumerator, data = master_ps,
↪  clusters = PARENT_KEY,
   fixed_effects = q2)



### estimate the effect of gender by any campaign treatment and
↪  control, with
### control variables

rmd_int1_any <- lm_robust(outcome_binary_resp ~ gender * Anytreatment +
↪  party + promises +
   education + profession + q5_age + female + primary_or_less + employed +
↪  correctMPname +
   close_to_a_party + turnout_last_elect + total_assets + ethnic_chewa +
↪  ethnic_lomwe +
   ethnic_yao + conservative + female_enumerator, data = master_ps,
↪  clusters = PARENT_KEY,
   fixed_effects = q2)

rmd_int2_any <- lm_robust(outcome_binary_other ~ gender * Anytreatment +
↪  party +
```

```
    promises + education + profession + q5_age + female + primary_or_less +
↪   employed +
    correctMPname + close_to_a_party + turnout_last_elect + total_assets +
↪   ethnic_chewa +
    ethnic_lomwe + ethnic_yao + conservative + female_enumerator, data =
↪   master_ps,
    clusters = PARENT_KEY, fixed_effects = q2)




## Get estimates of the difference in causal effect of gender
↪   across treatment,
## standard errors and p-values for plotting Figure 5: Average
↪   marginal
## component effect of gender (female) by treatment (respondent's
↪   preferred
## candidate)

## comparing discrimination and progress to control group
↪   (reference category)
rmd_int1 <- lm_robust(outcome_binary_resp ~ gender * tr_video + party +
↪   promises +
    education + profession + q5_age + female + primary_or_less + employed +
↪   correctMPname +
    close_to_a_party + turnout_last_elect + total_assets + ethnic_chewa +
↪   ethnic_lomwe +
    ethnic_yao + conservative + female_enumerator, data = master_ps,
↪   clusters = PARENT_KEY,
    fixed_effects = q2)

rmd_int2 <- lm_robust(outcome_binary_other ~ gender * tr_video + party +
↪   promises +
    education + profession + q5_age + female + primary_or_less + employed +
↪   correctMPname +
    close_to_a_party + turnout_last_elect + total_assets + ethnic_chewa +
↪   ethnic_lomwe +
    ethnic_yao + conservative + female_enumerator, data = master_ps,
↪   clusters = PARENT_KEY,
    fixed_effects = q2)
```

```
## make discrimination the reference category

rmd_int1_lv <- lm_robust(outcome_binary_resp ~ gender * tr_video_lv +
 ↪  party + promises +
    education + profession + q5_age + female + primary_or_less + employed +
 ↪  correctMPname +
    close_to_a_party + turnout_last_elect + total_assets + ethnic_chewa +
 ↪  ethnic_lomwe +
    ethnic_yao + conservative + female_enumerator, data = master_ps,
 ↪  clusters = PARENT_KEY,
    fixed_effects = q2)

rmd_int2_lv <- lm_robust(outcome_binary_other ~ gender * tr_video_lv +
 ↪  party + promises +
    education + profession + q5_age + female + primary_or_less + employed +
 ↪  correctMPname +
    close_to_a_party + turnout_last_elect + total_assets + ethnic_chewa +
 ↪  ethnic_lomwe +
    ethnic_yao + conservative + female_enumerator, data = master_ps,
 ↪  clusters = PARENT_KEY,
    fixed_effects = q2)

## compile estimates for plotting estimates for difference in
 ↪  causal effects
## for Figure 5
dff_amces <- c(rmd_int1$coefficients["genderFemale:tr_videoLow viability"],
 ↪  rmd_int1$coefficients["genderFemale:tr_videoHigh viability"],
    rmd_int1_lv$coefficients["genderFemale:tr_video_lvHigh viability"])

se_dff_amces <- c(rmd_int1$std.error["genderFemale:tr_videoLow viability"],
 ↪  rmd_int1$std.error["genderFemale:tr_videoHigh viability"],
    rmd_int1_lv$std.error["genderFemale:tr_video_lvHigh viability"])

pv_dff_amces <- c(rmd_int1$p.value["genderFemale:tr_videoLow viability"],
 ↪  rmd_int1$p.value["genderFemale:tr_videoHigh viability"],
    rmd_int1_lv$p.value["genderFemale:tr_video_lvHigh viability"])


dff_mtab_amce = tibble(dff = c("Control vs. Low viability", "Control vs.
 ↪  High viability",
    "Low vs. high viability"), est = dff_amces, se = se_dff_amces, pvalue =
     ↪  pv_dff_amces)
```

```
## estimates for difference in causal effects for Figure F.1

dff_amces2 <- c(rmd_int2$coefficients["genderFemale:tr_videoLow viability"],
 ↪  rmd_int2$coefficients["genderFemale:tr_videoHigh viability"],
    rmd_int2_lv$coefficients["genderFemale:tr_video_lvHigh viability"])

se_dff_amces2 <- c(rmd_int2$std.error["genderFemale:tr_videoLow viability"],
 ↪  rmd_int2$std.error["genderFemale:tr_videoHigh viability"],
    rmd_int2_lv$std.error["genderFemale:tr_video_lvHigh viability"])

pv_dff_amces2 <- c(rmd_int2$p.value["genderFemale:tr_videoLow viability"],
 ↪  rmd_int2$p.value["genderFemale:tr_videoHigh viability"],
    rmd_int2_lv$p.value["genderFemale:tr_video_lvHigh viability"])


dff_mtab_amce2 = tibble(dff = c("Control vs. Low viability", "Control vs.
 ↪  High viability",
    "Low vs. high viability"), est = dff_amces2, se = se_dff_amces2, pvalue
     ↪  = pv_dff_amces2)
```

Figure **??** presents our main results, namely the relationship between Step 1, gender campaign message type, and Step 4, vote choice, in Figure 2. It displays the causal effects (i.e., AMCEs) of being female (relative to male) on a hypothetical candidate's vote share for each treatment with 95% confidence intervals. We use difference-in-means tests to compare the conditional effects and test our hypotheses.[14]

For respondents in the control group, being a woman increased a hypothetical candidate's likelihood of being selected by 5.6 percentage points (pp). This suggests that, all else equal, at least in the survey-experimental setup, respondents prefer women candidates to men, which prior studies

[14]These differences are estimated using OLS regression and are displayed without (Model 3) and with (Model 4) adjusting for covariates and constituency fixed effects in Appendix Table C.3. Figure **??** also shows the marginals of choosing profiles of men and women within each treatment condition and suggests that our findings are not driven by systematic differences in baseline support for women candidates within each subgroup (Leeper, Hobolt, and Tilley 2020).

in Africa and elsewhere have also found (Aguilar et al. 2015; Clayton et al. 2020; Dahl and Nyrup 2021; e.g., Kage, Rosenbluth, and Tanaka 2019; Teele, Kalla, and Rosenbluth 2018). In the discrimination treatment group, the AMCE is 10.8 pp, which represents a 5.2 pp ($p < 0.001$) increase compared to the control group. Finally, in the progress treatment group, the causal effect is 14.4, an 8.8 pp ($p < 0.001$) increase relative to the control group. These results demonstrate that both types of campaigns generated a statistically significant increase in support for women candidates. Thus, consistent with H2, the alternative campaign increased support for female aspirants. But in contrast to H1, the typical campaign, which emphasized discrimination, did not undermine the chances of women aspirants (at least compared to no campaigns).[15]

Consistent with H3, the alternative campaign was more effective than the more common campaign, which highlights discrimination. The 3.6 pp difference between the two treatments is statistically significant ($p < 0.034$). While both campaigns increased the effect of being a woman on a candidate's vote share in our conjoint survey, our results indicate that campaigns that combine messages about women's capabilities with an emphasis on their electoral successes (even if minimal) are more effective than those that prime voters to think about the challenges women face in elections. [16] Thus, even within the low-cost environment of a survey experiment, where respondents may be less likely to act strategically compared to real world elections, we observe that voters exposed to information about women's capabilities and discrimination against women candidates are less likely to support women compared to voters who instead receive information about women's capabilities and the progress of women in politics. As we discuss in the following section, we cannot say for sure why the typical gender campaign has a positive, albeit weaker,

[15]Table C.3 Model (1) shows the causal effect of each attribute's values relative to a chosen baseline. In Model (2), we estimate the causal impact of being exposed to any of the gender campaigns by interacting gender (female) with a treatment variable that combines the alternative and progressive campaigns to compare to the placebo group. Exposure to any gender campaign increases the effect of being a woman by 7 pp.

[16]We pre-specified to test whether the effects of gender campaigns vary according to respondents' gender or the candidate's party affiliation and found that they do not (see Appendix Tables E.1 and E.3, respectively). Following Sundström and Stockemer (2022), we also demonstrate that the enumerator's gender does not affect our results (the three-way interactions are insignificant in Appendix Table E.2).

effect on support for women compared to the alternative campaign. However, it indicates that even if a mobilization effect occurs whereby some voters support women when learning of discrimination, it is not as strong as the effect of learning of the progress of women in politics, which lends support to our argument on strategic voting. We explore the mechanisms underlying the effects of our treatments in the following section.

```
## Figure 5: Average marginal component effect of gender (female)
↪  by treatment
## (respondent's preferred candidate)


estlab <- paste(round(dff_mtab_amce$est, 3), rep(" (se= ", 3),
↪  round(dff_mtab_amce$se,
    3), rep(", p < ", 3), c(0.001, 0.001, 0.034), rep(")", 3), sep = "")


ggplot(mtab_amce, mapping = aes(x = point, y = est)) + geom_point(size =
↪  10) + geom_errorbar(mtab_amce,
    mapping = aes(x = point, ymin = est - 1.96 * se, ymax = est + 1.96 *
     ↪  se), size = 2,
    width = 0.01) + scale_x_continuous(breaks = c(1, 2, 3), labels =
     ↪  c("Control",
    "Discrimination", "Progress"), limits = c(0.5, 3.5)) + labs(x =
     ↪  "Treatment",
    y = "Average marginal component effect") + scale_y_continuous(limits
     ↪  = c(-0.01,
    0.22)) + geom_bracket(xmin = c(1, 1, 2), xmax = c(2, 3, 3), y.position
     ↪  = c(0.17,
    0.19, 0.21), label = estlab, tip.length = 0.01, size = 1.1, label.size =
     ↪  10,
    family = "serif") + theme_tufte() + plottheme
```

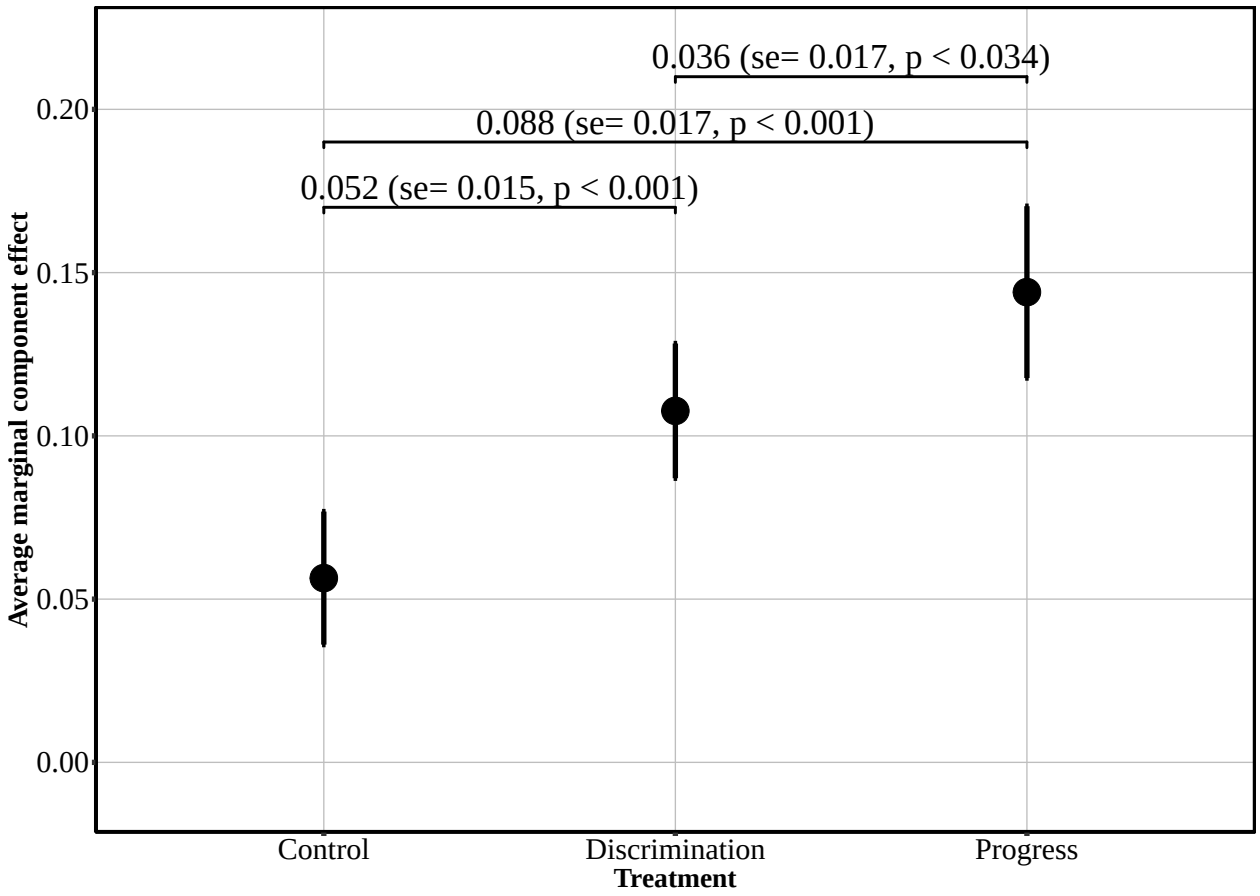

Figure 5: Average marginal component effect of gender (female) by treatment (respondent's preferred candidate)

Boosting the external validity of the results, Appendix Table C.5 shows that the estimates are robust to adjusting for the real-world distribution of the values of the attributes in the conjoint experiment. De la Cuesta, Egami, and Imai (2022) shows that the causal effects of specific attribute values in a conjoint survey rely on the distribution of the values of the other factors. We assumed that for each attribute, each value was equally likely, but Appendix Table C.4 shows this is not true in practice. For example, 56% run as independents within the Malawian candidate pool, and maize farmers only constitute 5% of candidates.[17]. We run a robustness check weighting the profiles with the real-world marginals of each attribute to estimate the population AMCE (Appendix Table C.5), and the results are consistent with our main analyses.

Finally, we also analyze the heterogeneous effects of the fictive candidates' party affiliation (incumbent/runner-up/independent) and the respondent's gender (Appendix E). On average, the effects of the voter education campaigns on voters' willingness to support women candidates do not differ by the fictive candidates' party affiliations nor by respondent gender. We also do not find any differences in the response to the discrimination message among more or less conservative women (similar to results from Bankert (2020)). That women respondents do not respond differently to the discrimination campaign compared to men also suggests that a mobilization effect of the discrimination message- whereby women's gender identity is made more salient when learning about discrimination- is unlikely.

6 Mechanisms

```
## Structural text model of open-ended question regarding what
↪  respondents
## learned from the treatment video
```

[17]Data on the distribution of values in the candidate pool on gender and partisanship are from Malawi's Electoral Commission, and data on the distribution on occupation and education are from the Malawi Candidate Survey (Wahman and Seeberg 2022)

```
opdat <- psat %>%
    dplyr::filter(validdata) %>%
    dplyr::select(KEY, tr_video, q4, q23) %>%
    dplyr::mutate(q4 = ifelse(q4 == 3, NA, ifelse(q4 == 1, "Male",
 ↪  "Female")))

# dim(opdat)
opdat <- na.omit(opdat)  ## remove missing data rows
# dim(opdat)

## set seed
set.seed(1354)

## process text specifying the text variable. the remaining
 ↪  covariates are the
## gender and treatment assignment of respondent
processed <- textProcessor(opdat$q23, metadata = opdat)

## prep corpus for stm modeling
out <- prepDocuments(processed$documents, processed$vocab,
 ↪  processed$meta)

docs <- out$documents
vocab <- out$vocab
meta <- out$meta

## estimate the STM model
viaMod <- stm(documents = out$documents, vocab = out$vocab, K = 11,
 ↪  prevalence = ~tr_video,
    max.em.its = 75, data = out$meta, init.type = "Spectral")
```

In contrast to our expectations, our findings suggest that both the alternative campaign and the typical campaign including the discrimination message improve the electoral fortunes of women candidates. However, as also implied by our hypotheses, we find that progress messages are more effective than discrimination messages, as they have a significantly stronger effect on the likelihood of selecting a woman. In the following sections, we investigate the causal mechanisms presented in

Figure 2 and explore potential reasons why the discrimination campaign also increased the chances of voting for women.

First, we assess whether the campaigns have differential effects on voters' perceptions of other citizens' preferences for women candidates that indicate beliefs about the electability of women (Step 3b in Figure 2). Second, we test whether respondents took away different messages about women's capability and viability depending on the campaign video they watched. After participating in the conjoint survey, we asked respondents to briefly describe what they learned from the video (treatment) they watched. The responses to this open-ended question offer direct insights into the information that respondents took away from the gender campaigns (Step 2 in Figure 2), and thus what elements of the treatments might affect candidate choice (Roberts et al. 2014).[18]

6.1 Do gender campaigns affect voters' beliefs about other constituents' preferences for female candidates?

The results above provide initial support for our proposed channel of influence. However, contrary to our expectation, the discrimination campaign did not reduce the willingness to vote for female politicians relative to the control group. To probe this result, we further test whether our treatments differentially affect voters' perceptions of discrimination against women in politics and the viability of women candidates using two approaches. First, we examine the impact of

[18]We also pre-specified to test our mechanism using close-ended questions that indicate perceptions of women's electoral viability. Survey respondents answered questions relating to whether: 1) voting for a female candidate is a waste of one's vote; 2) a female candidate will succeed in their constituency; 3) there will be more women MPs elected in the next elections; and 4) men make better political leaders than women. Appendix Table F.4 shows our results. Our results are mixed. However, consistent with our empirical findings, both treatments had similar effects of either improving or having no impact on these perceptions. Notably, while these are important second-stage outcomes, we believe they do not help to adjudicate how our treatments' differential impact on beliefs that ultimately change vote choice.

our treatments on four pre-specified closed-ended questions.[19] Second, we analyze the results of respondents' answers to an open-ended question about what they learned from the video.

Appendix Table F.4 shows our results for the closed-ended questions. Our findings are twofold. First, as expected, both campaigns improved citizens' perceptions that women politicians are equally competent as men. Specifically, both treatment groups disagreed with the statement that "men make better letters" (Column 1). [20]

Second, in contrast to our expectations, both gender campaigns appear to have similar impacts on our [intermediate] measures of female candidates' viability and the discrimination they face. Compared to the control group, participants in the treatments were less likely to agree that (1) "in parliamentary elections, it was better to vote for a man than a woman because males are more likely to win" (column 2); "a woman running for parliament in my constituency is likely to be unsuccessful as she would face discriminations from parties or voters" (column 3); and more likely to agree that (3) "after the 2025 elections, we will have more women MPs than we have today." The similarity of effects makes it hard to explain why we find a larger positive effect of the progress treatment compared to the discrimination treatment.

Yet, as we explained in section 4.1, answers to such closed-ended questions following exposure to the videos on women in politics are susceptible to social desirability bias. Unlike our main outcome measure – where candidate gender was one of several attributes in a conjoint survey task – these intermediate measures enquire more bluntly about respondents' attitudes towards women in politics. Social desirability bias may explain why we do not find differences in how the treatment shaped perceptions. Therefore, we leverage answers to an open-ended question that we asked respondents at the end of the survey to explore whether participants updated their beliefs concerning the capabilities and viability of women candidates.

[19] We asked respondents the extent to which they agreed with each statement on a 1-4 scale. These questions were introduced as follows: "In the following, I will present a number of statements that could reflect the views of some Malawians. I would like to know how much you agree with these statements."

[20] Question wording: "Men make better political leaders than women".

As noted in Section 4.1, we exposed respondents to a campaign message with several parts, thus it is difficult to know which component stuck with respondents and possibly influenced their voting decision (see Step 2 of the causal model (Figure 2). For example, the discrimination video also emphasizes women's capabilities – specifically related to development – and an encouragement to vote for women. These two components are likely to have differential effects on voters. If participants primarily absorbed the information about women's capabilities – rather than discrimination – this may explain the positive impact of the discrimination message. Fortunately, the open-ended answers offer insights into respondents' main takeaways (Roberts et al. 2014) without cueing them to think of particular messages (Iyengar 1996). Accordingly, this analysis helps us assess which components of the messages might have spurred the effects and why the discrimination message – contrary to expectations – had a positive effect on the probability of selecting women.

```
texreg(rmd_pfc, include.ci = FALSE, caption = "Probability of belief that
 ↪  others in constituency will pick profile containing a female aspirant by
 ↪  treatment",
    label = "other_pick_female", center = TRUE, use.packages = FALSE,
     ↪  custom.coef.names = c("Intercept",
        "Progress", "Discrimination"), float.pos = "h", caption.above = T,
         ↪  custom.model.names = c("Other constituents would pick profile
         ↪  "),
    digits = 3)
```

Table 1: Probability of belief that others in constituency will pick profile containing a female aspirant by treatment

	Other constituents would pick profile
Intercept	0.515^{***}
	(0.005)
Progress	0.041^{***}
	(0.009)
Discrimination	0.016^{*}
	(0.008)
R^2	0.001
Adj. R^2	0.001
Num. obs.	13423
RMSE	0.499
N Clusters	2238

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

6.2 What messages do respondents take away from the gender campaign?

As noted in Section 4.1, we exposed respondents to a campaign message with several parts, thus it is difficult to know which component stuck with respondents and possibly influenced their voting decision (see Step 2 of the causal model (Figure 2). For example, the discrimination video also emphasizes women's capabilities – specifically related to development – and an encouragement to vote for women. These two components are likely to have differential effects on voters. If participants primarily absorbed the information about women's capabilities – rather than discrimination – this may explain the positive impact of the discrimination message. Fortunately, the open-ended answers offer insights into respondents' main takeaways (Roberts et al. 2014) without cueing them to think of particular messages (Iyengar 1996). Accordingly, this analysis helps us assess which components of the messages might have spurred the effects and why the discrimination message – contrary to expectations – had a positive effect on the probability of selecting women.

We employ a structural topic modelling (STM) approach proposed by Roberts et al. (2014) – a semi-automated statistical topic modelling approach that helps (1) infer themes automatically

from text and (2) assess whether these themes vary by specified covariates, in this case our gender message treatments. First, based on the exclusivity and semantic coherence criteria, we determined 11 to be the appropriate number of themes.[21] Second, we estimated an STM model specifying our treatment variable as a covariate. For each open-ended response, the model estimates the proportion of words that belong to the specified topics, and thus the likely focus of a respondent's answer.

To provide meaningful labels to describe each of the 11 topics generated by the unsupervised statistical learning process, we examined the top 100 responses for each topic. Appendix F.2 describes all 11 topics.[22] The topics capture various elements of the treatments, which suggests that different aspects of the same campaign message were salient to different respondents. Seven topics were theoretically interesting as they relate to either **capability** or **discrimination** (see Figure **??**). No topics seem to relate clearly to **progress**.

Three topics are related to discrimination in particular or electoral viability more broadly. Topic (1) concerns encouraging women to run for office. Respondents suggested that women need support from voters, and sometimes from men, to run and succeed in politics because they are discouraged by parties. In Topic (2), respondents focused on how women are discriminated against in politics. They also suggested that, despite the electoral discrimination women face, they are more likely to bring development to their communities. Similar to the first topic, in Topic (3), respondents emphasize that it is important that women take part in politics and that they should be encouraged to do so regardless of the discrimination they face. The remaining four topics we interpret as related to women's political performance capabilities. Topic (4) focused on the ability of women MPs to bring development to their constituencies relative to men. Topic (5) characterized women as powerful and capable political leaders. In Topic (6), respondents discuss the "superior-

[21] We use the *searchK()* function in the STM package in R to search the ideal number of topics. We specified our treatment as a covariate that may affect topic variance and searched between 3 and 20 themes.

[22] Appendix Figure F.2 lists the key terms associated with each topic, while Appendix Figures F.3 and F.4, respectively, display the top responses for the discrimination and progress topics.

ity" of female politicians and stress that women work hard and are less corrupt than men. Topic (7)'s central message is that we should "vote for women" because they are superior to men or can bolster local development. The remaining topics picked up on themes from the control video or respondents not understanding or recalling the video they watched.

Figure **??** illustrates the contrast (i.e., average treatment effect) in the prevalence of topics between the progress and discrimination treatment groups. It illustrates which topics respondents were significantly more likely to *recall*, depending on which video they watched. Figure **??** shows that respondents exposed to discrimination messages were more likely to talk about the low electoral viability of women candidates and the discrimination they face by voters and political elites. Specifically, they were more likely to mention women's need to be encouraged (Topic 1), the discrimination faced by women (Topic 2), and that women can (and should) be motivated to run in elections (Topic 3) than those who received the progress message. This perception of the lower viability of women candidates could explain why respondents in this group reported being less likely to vote for women than those exposed to the progress message. An alternative interpretation of topic (3) would be a mobilization effect, whereby especially women voters mobilize to support women when they hear of discrimination. This would imply that the discrimination message should have a stronger positive effect on women's willingness to vote for women than on men's, and that women were more likely to give descriptions of the discrimination video that fitted topic 3. However, we find that this is not the case (see Appendix Table E.6).

At the same time, Appendix Table F.2 illustrates that the most common takeaways from the discrimination message were not "discrimination." Although respondents exposed to the progress message were more likely to stress women's ability to spur development (Topic 4) than those who watched the discrimination video (Figure **??**), among all topics, respondents in the discrimination treatment were most likely to emphasize how women secure development and are capable (Topics 4 and 5) (Table F.2). Thus, a plausible explanation for why the discrimination message – contrary to our expectations – has a positive effect on voting for women could be that voters weighed in-

formation about women's capabilities more heavily when both messages were delivered together. Even though the literature on civic education has found interventions to be less effective in altering norms and beliefs, our results suggest that voters do absorb these messages. However, the results also show that unlike the respondents who watched the progress video, those exposed to the discrimination treatment were indeed more likely to discuss the low viability of women candidates and the discrimination they face from both masses and elites.

Participants in the progress treatment group were more likely to retain information about women's capabilities than they were details about their increasing representation. They indicated learning that "women bring (more) development" (relative to men) and that "women candidates are superior to men." It could be that the progress component simply strengthened the *capabilities* component by suggesting that women in political office have achieved a great deal for their constituents.[23] And importantly, this group of respondents were significantly less likely to discuss the low viability of women candidates or the discrimination they face. Overall, our results suggest that even though respondents did not necessarily recall information about the progress of women in politics, combining information about women's capabilities with concrete information about their progress is the most effective type of campaign.

[23]Participants in the progress treatment were also more likely than those in the discrimination treatment to say the lesson from the video was unclear.

```r
## Remake default plot for publication

estimatetab <- dplyr::mutate(estimatetab, topic_n = c(11, 1, 10, 8, 7, 5,
↪  4, 6, 3,
    9, 2))



ses_dat <- tibble(x = -0.1, y = c(1.5, 4, 7, 10), lab =
↪  rev(c("Discrimination", "Capabilities \n(Performance)",
    "Placebo/generic", "Other")))


ggplot(estimatetab, mapping = aes(x = estimate, y = topic_n, label =
↪  labels)) + geom_point(size = 6) +
    geom_errorbar(estimatetab, mapping = aes(x = estimate, xmin = lwb,
    ↪  xmax = uwb),
        size = 1.2, width = 0.01) + labs(x = "Average treatment effect
        ↪  (Progress - Discrimination)",
    y = "Topic") + scale_x_continuous(limits = c(-0.1, 0.045)) +
    ↪  scale_y_continuous(breaks = c(1:11),
    labels = as.character(c(11:1))) + geom_text(aes(x = lwb - 0.015, y
    ↪  = topic_n),
    size = 11) + geom_vline(xintercept = 0, linetype = "dotdash", size =
    ↪  2) + geom_hline(yintercept = c(8.5,
    5.5, 2.5), linetype = 1, size = 2) + geom_text(data = ses_dat, mapping
    ↪  = aes(x = x,
    y = y, label = lab), colour = "black", fontface = "bold", size = 12,
    ↪  angle = 90) +
    theme_bw(base_size = 22) + theme(axis.text.y = element_text(family =
    ↪  "serif",
    size = 40, colour = "black"), axis.text.x = element_text(family =
    ↪  "serif", size = 40,
    colour = "black"), axis.title = element_text(face = "bold", size = 40,
    ↪  colour = "black"))
```

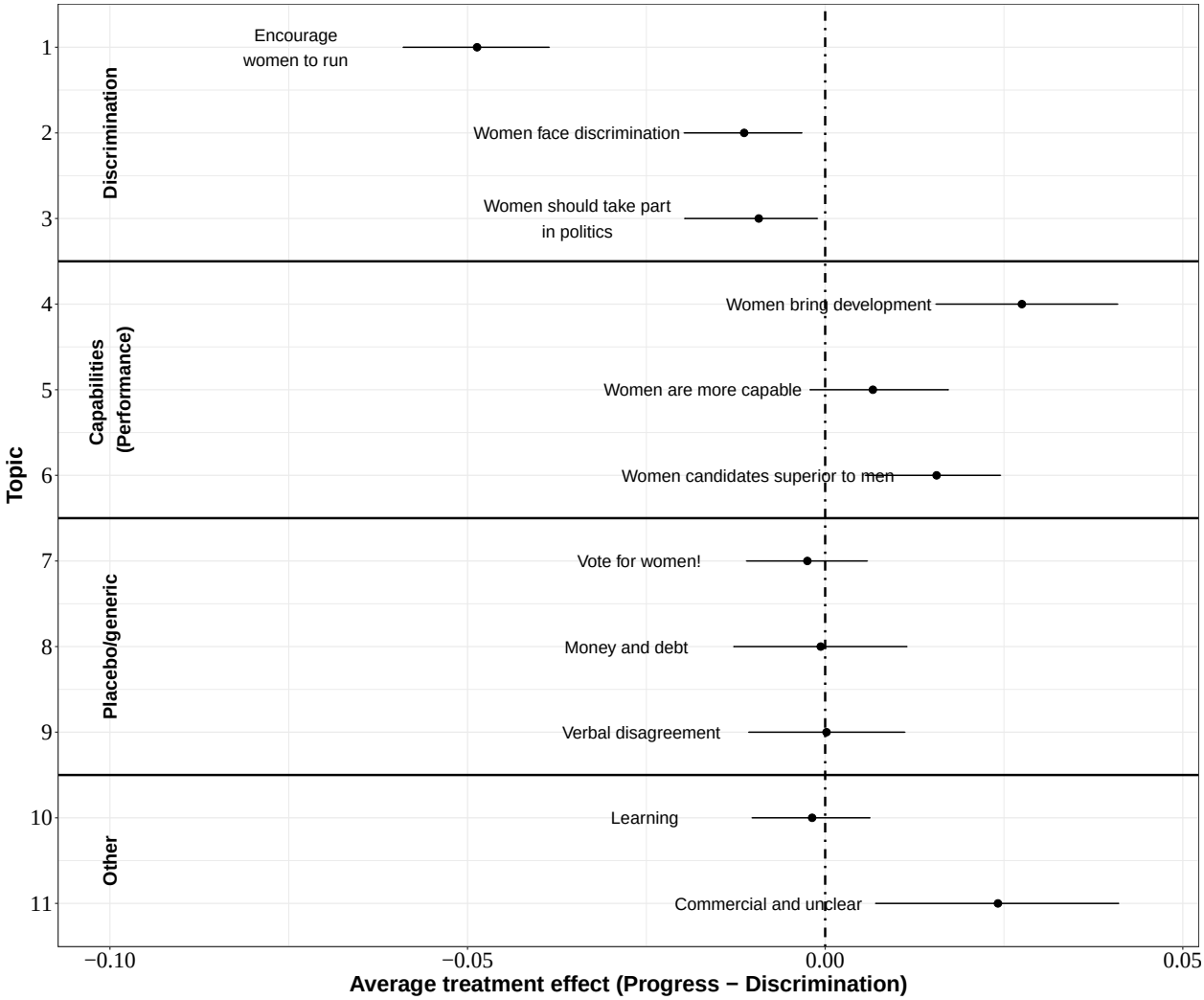

Figure 6: Difference in topic prevalence between progress and discrimination treatments

7 Conclusion

We set out to test the effect of voter education campaigns on individuals' willingness to vote for women. We suspected that the typical campaign may have counterintuitive effects. By highlighting the discrimination against women candidates, such campaigns could lead voters to expect that women are not viable, and thus withdraw their support from female candidates. Yet contrary to our expectations, we find that the typical campaign, which combines messages about the capabilities of women in politics with information about discrimination against women, has a positive effect on voters' expressed willingness to vote for women. However, in alignment with our hypotheses, this is not as effective as our suggested alternative, which instead informs voters of the recent progress of women in politics.

Analyzing why this is so, we find that across treatments and candidate genders, respondents are most likely to vote for the candidate they believe others in their constituency will also vote for. This supports the notion that voters' assessments of candidates' electoral viability matter. Analyses of respondents' answers to an open-ended question suggest that respondents were more likely to recall information about the discrimination faced by women if they watched the discrimination video, suggesting that this could indeed have reduced the positive effect of the typical gender campaign. At the same time, even respondents who watched the discrimination video were more likely to recall the capability message than the discrimination message, which may explain why the overall effect of the discrimination treatment is not negative.

We add to existing studies relying on conjoint candidate choice designs which have found that voters were more likely to support women than initially expected in several ways. First, we compare levels of support for women across treatment groups rather than focusing on the support for women vs men across all respondents. Second, we provide information about discrimination against women to the candidate choice setup, which may reflect actual elections more accurately and thus more correctly predict support for women candidates (Clayton et al. 2020).

The study was carried out in Malawi, and two scope conditions apply. First, the viability mechanism stressed in this study will be particularly pertinent in SMD elections, particularly when levels of clientelism are high. Second, the findings may not generalize to dominant-party regimes with low levels of constituency-level uncertainty, because candidate-level traits are less relevant for electoral viability. Despite these limitations, we expect the findings to be generalizable to many political systems, particularly in the developing world. Malawi is a typical case of female political representation, and we expect that similar campaigns could be effective in a diverse set of countries.

Our findings have important theoretical, methodological, and practical implications. First, the study contributes to key theoretical debates on descriptive representation and the effect of candidate gender on vote choice by emphasizing how perceptions of viability and discrimination affect the election of women candidates. Voters are informed not only by their own prejudice when deciding to vote against women candidates, but also by their assessment of other voters' and political elites' potential bias against female candidates. Thus, whereas stories of exclusion may be effective in getting voters to accept policy reforms, such as the introductions of quotas (Coffé and Reiser 2023), it can have counterproductive effects on attempts to get voters to support women in elections. This is particularly important where electoral systems are disproportionate and clientelism prevails. At the same time, our findings correspond to results from studies of strategic discrimination in the United States (Bateson 2020). Thus, although

However, our results also suggest that campaigns aiming to reduce concerns that women are unviable candidates by stressing increases in their representation levels and successful political careers can boost voters' demand for women candidates. Increasing descriptive representation may lead to virtuous cycles of higher perceptions of viability, leading to yet higher levels of female representation (Schwindt-Bayer 2010).

Second, although previous research has been skeptical about civic education's ability to shape moral political beliefs (Finkel 2003, 2014; Finkel, Horowitz, and Rojo-Mendoza 2012), our results

indicate that campaigns can have such desirable effects. Future work should investigate the long-term effects of interventions to change perceptions of female suitability for political leadership, and how these effects may be improved through more interactive intervention strategies Finkel (2003).

Third, the study also illustrates how small adjustments to messaging may alter the effectiveness of civic education campaigns. Relatedly, we also emphasize the potential of using open-ended questions and STM to understand what respondents extract from complicated treatments in an experimental setting. Such methods could be used widely in research on civic education and in comparative politics more broadly to reduce the reliance on pre-conceived assumptions about how respondents interpret treatments.

Lastly, our results lend credibility to civic education campaigns designed to enhance female political representation. Even in countries like Malawi, where respondents may have been pre-treated, respondents are more likely to pick female candidates after being exposed to our messages. However, the findings also emphasize the importance of carefully designing campaigns, preferably by pre-testing messages before deploying them in the field. Messages are not equally effective and may even be counterproductive (see also Cheeseman and Peiffer (2022)). Organizers should consider positive information about women's standing in politics as a substitute for – or at least a supplement to – information about discrimination against women candidates.

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Supporting Information For:

Messages matter: How voter education campaigns affect citizens' willingness to vote for women

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A Ethical consideration

The research was provided ethical clearance from the authors' home institutions and the University of Malawi's Research Ethics Committee (reference omitted for review). Enumerators read a verbal consent form to participants in which participants were informed about the purpose of the interview (research) and their rights as participants. These rights included the right to refuse or quit the interview at any point. Enumerators could not proceed with the interview without acknowledging consent from the respondent. The study does not include any form of deception. While the survey includes political manipulations that could affect political processes, we anticipate that such effects should be small and without harm. The study was conducted three years before the next Malawian election, and the information provided in the treatments is similar to the information communicated by the Malawi 50:50 campaign. If any effect of the study persists by the time of the next election, this effect should promote further political inclusion.

B Descriptive statistics of sample and treatment assignment

In this section, we provide descriptive statistics of our sample and treatment assignment in Tables B.1 and B.2, respectively.

Table B.1 shows the descriptive statistics of our participants. As expected, due to our gender quota sampling procedure, half of our respondents were female. They were 37 years old, on average. Also, consistent with the recent Malawian census, most of our respondents had primary education or less (73%). About 14% said they had a job, and 6% said they worked in the Agricultural sector. A plurality of our respondents (39%) owned a radio, but only about 9% had a TV or a motorbike. However, a significant majority, 66%, owned a mobile phone. A plurality (42%) of our respondents said they belonged to the Chewa group, while about 29%, 12.5%, and 5% self-identified as Lomwe, Sena, and Yao, respectively.

Our respondents were politically knowledgeable and active. Almost 84% of respondents could correctly name the MP of their constituency, and 79% knew the representative's political affiliation. In addition, about 7 in 10 (72%) said they felt close to a political party. Among partisans, 54% indicated their affinity to the incumbent DPP, 35% said they felt close to the MCP, and 7% to UTM. Close to 74% voted in the last election.

Finally, to gauge the extent to which individuals held conservative views about society (and potentially women political leadership), we asked the following question: "I am now going to read you two statements. I would like to know which one of these statements that are closest to your views: (1) As a country, we have to honor our traditions and culture; (2) As a country, we have to move with the times." About 45% of our respondents agreed with the former and were coded as conservative.

```
# makes Table B.1: Descriptive statistics of respondents

resp_char <- psat %>%
```

```
    dplyr::filter(validdata) %>%
    dplyr::select(q5_age, female:conservative) %>%
    psych::describe(fast = TRUE) %>%
    as_tibble(rownames = "rowname") %>%
    dplyr::select(rowname, mean, sd, n)

resp_char %>%
    dplyr::mutate(varlab = c("Age", "Gender (Female=1)", "Education
↪   (Primary or less =1)",
        "Employed", "Agricultural worker", "Correctly names MP", "Correctly
        ↪  names MP's party",
        "Feel close to a party", "Party= DPP", "Party=MCP", "Party= UTM",
        ↪  "Voted in last election",
        "Own a radio", "Own a TV", "Own a motor", "Own a mobile phone",
        ↪  "Total assets (out of 4)",
        "Chewa", "Lomwe", "Yao", "Sena", "Conservative")) %>%
    dplyr::select(varlab, mean, sd, n) %>%
    kbl(caption = "Descriptive statistics of respondents", digits = 3,
    ↪  col.names = c("Variable",
        "Mean", "Std. Dev.", "N"), booktabs = T, label = "desc_stat",
        ↪  position = "h") %>%
    kable_classic(full_width = F, font_size = 9) %>%
    column_spec(1, width = "25em") %>%
    pack_rows("Demography", 1, 5) %>%
    pack_rows("Politics", 6, 12) %>%
    pack_rows("Assets", 13, 17) %>%
    pack_rows("Ethnicity", 18, 21) %>%
    pack_rows("Conservative view", 22, 22)
```

Table B.2 shows the proportion of respondents assigned to the different treatment conditions. It shows that our randomization worked as expected. We employed a tool developed by Stefanelli and Lukac (2020) to determined the sample size for our study. The algorithm takes a proposed sample size, the number of tasks for each respondent, the effect size (AMCE), and the number of attribute levels to estimate the power of a design. Based on a recent meta-analysis that estimates the effect of gender (female =1) across settings, we took an AMCE of 3% as a baseline (i.e., control group) (Schwarz and Coppock 2022). We then assume that our progress treatment would increase the AMCE by three percentage points (pp) and the discrimination message would decrease the baseline causal effect of gender by 3pp.

With these set of assumptions, we estimated the following sample sizes for each treatment group, with each respondent undertaking six voting tasks: (1) Progress = 500 (prob = 0.24); (2) Discrimination = 800(0.38); and Control = 800 (0.38).

Table B.1: Descriptive statistics of respondents

Variable	Mean	Std. Dev.	N
Demography			
Age	37.193	15.246	2239
Gender (Female=1)	0.501	0.500	2239
Education (Primary or less =1)	0.732	0.443	2239
Employed	0.138	0.345	2239
Agricultural worker	0.057	0.232	2239
Politics			
Correctly names MP	0.839	0.368	2239
Correctly names MP's party	0.785	0.411	2239
Feel close to a party	0.719	0.450	2224
Party= DPP	0.542	0.498	1599
Party=MCP	0.350	0.477	1599
Party= UTM	0.070	0.255	1599
Voted in last election	0.736	0.441	2239
Assets			
Own a radio	0.393	0.488	2239
Own a TV	0.088	0.283	2239
Own a motor	0.094	0.292	2239
Own a mobile phone	0.658	0.475	2239
Total assets (out of 4)	1.233	1.038	2239
Ethnicity			
Chewa	0.423	0.494	2239
Lomwe	0.286	0.452	2239
Yao	0.053	0.224	2239
Sena	0.125	0.331	2239
Conservative view			
Conservative	0.451	0.498	2231

```
## Table B.2: Descriptive statistics: assignment of respondents
 ↪  to treatment
## conditions

tr_tab_a <- psat %>%
    dplyr::filter(validdata) %>%
    dplyr::count(tr_video, sort = T) %>%
    dplyr::filter(!is.na(tr_video)) %>%
    dplyr::mutate(Proportion = n/sum(n)) %>%
    dplyr::mutate(tr_video = ifelse(tr_video == "High viability",
 ↪  "Progress", ifelse(tr_video ==
        "Low viability", "Discrimination", "Control")))

tr_tab_a %>%
    kbl(caption = "Descriptive statistics: assignment of respondents to
     ↪  treatment conditions",
```

```
        digits = 3, col.names = c("Treatment condition", "N", "Proportion"),
        ↪  booktabs = T,
        label = "tr_sum", position = "h") %>%
    kable_classic(full_width = F, html_font = "Cambria", font_size = 12)
    ↪  %>%
    column_spec(1, width = "12em")
```

Table B.2: Descriptive statistics: assignment of respondents to treatment conditions

Treatment condition	N	Proportion
Control	872	0.389
Discrimination	852	0.381
Progress	515	0.230

C Balance statistics

C.1 Respondents are similar across gender campaign treatments

Table B.1 shows the balance statistics across the gender campaign treatments. We perform a joint F-test using `anova(lm)` for each variable and report the F-statistic in the last column.

```
## Table C.1: Balance statistics across treatment groups

baltab <- psat %>%
    dplyr::filter(validdata) %>%
    dplyr::select(q5_age, female:conservative, tr_video) %>%
    dplyr::filter(!is.na(tr_video)) %>%
    dplyr::mutate(Treatment = ifelse(tr_video == "High viability",
↪   "Progress", ifelse(tr_video ==
        "Low viability", "Discrimination", "Control"))) %>%
    dplyr::select(-tr_video) %>%
    sumtable(group = "Treatment", group.test = TRUE, out = "kable", labels
    ↪  = c("Age",
        "Gender (Female=1)", "Education (Primary or less =1)", "Employed",
        ↪  "Agricultural worker",
        "Correctly names MP", "Correctly names MP's party", "Feel close to a
        ↪  party",
        "Party= DPP", "Party=MCP", "Party= UTM", "Voted in last election",
        ↪  "Own a radio",
```

```
        "Own a TV", "Own a motor", "Own a mobile phone", "Total assets (out
        ↪  of 4)",
        "Chewa", "Lomwe", "Yao", "Sena", "Conservative"), title = "Balance
        ↪  statistics across treatment groups",
        anchor = "bal_stats", digits = 2)

baltab %>%
    kable_classic(full_width = T, html_font = "Cambria", font_size = 10)
    ↪  %>%
    column_spec(1, width = "18em") %>%
    pack_rows("Demography", 1, 5) %>%
    pack_rows("Politics", 6, 12) %>%
    pack_rows("Assets", 13, 17) %>%
    pack_rows("Ethnicity", 18, 21) %>%
    pack_rows("Conservative view", 22, 22)
```

Table C.1: Balance statistics across treatment groups

Treatment	Control			Discrimination			Progress			
Variable	N	Mean	SD	N	Mean	SD	N	Mean	SD	Test
Demography										
Age	872	37	15	852	38	16	515	37	14	F=0.588
Gender (Female=1)	872	0.5	0.5	852	0.51	0.5	515	0.5	0.5	F=0.083
Education (Primary or less =1)	872	0.73	0.44	852	0.73	0.44	515	0.73	0.44	F=0.004
Employed	872	0.14	0.35	852	0.13	0.34	515	0.14	0.35	F=0.168
Agricultural worker	872	0.062	0.24	852	0.047	0.21	515	0.066	0.25	F=1.383
Politics										
Correctly names MP	872	0.83	0.37	852	0.84	0.37	515	0.85	0.36	F=0.387
Correctly names MP's party	872	0.79	0.41	852	0.78	0.41	515	0.78	0.41	F=0.003
Feel close to a party	866	0.71	0.45	846	0.74	0.44	512	0.7	0.46	F=1.644
Party= DPP	616	0.56	0.5	626	0.53	0.5	357	0.54	0.5	F=0.399
Party=MCP	616	0.33	0.47	626	0.37	0.48	357	0.35	0.48	F=0.896
Party= UTM	616	0.068	0.25	626	0.065	0.25	357	0.081	0.27	F=0.458
Voted in last election	872	0.73	0.44	852	0.76	0.43	515	0.7	0.46	F=2.676*
Assets										
Own a radio	872	0.38	0.49	852	0.4	0.49	515	0.39	0.49	F=0.458
Own a TV	872	0.099	0.3	852	0.081	0.27	515	0.082	0.27	F=1.007
Own a motor	872	0.096	0.3	852	0.095	0.29	515	0.089	0.29	F=0.099
Own a mobile phone	872	0.65	0.48	852	0.66	0.47	515	0.67	0.47	F=0.533
Total assets (out of 4)	872	1.2	1.1	852	1.2	1	515	1.2	1	F=0.05
Ethnicity										
Chewa	872	0.42	0.49	852	0.42	0.49	515	0.44	0.5	F=0.249
Lomwe	872	0.29	0.45	852	0.29	0.45	515	0.28	0.45	F=0.044
Yao	872	0.053	0.22	852	0.062	0.24	515	0.039	0.19	F=1.745
Sena	872	0.13	0.34	852	0.11	0.31	515	0.14	0.34	F=1.375
Conservative view										
Conservative	871	0.45	0.5	849	0.46	0.5	511	0.45	0.5	F=0.088

Statistical significance markers: * p<0.1; ** p<0.05; *** p<0.01

C.2 Respondents' characteristics are not associated with the conjoint attributes' values

We examine in Table C.2 whether the conjoint attributes' values are independent of respondents' characteristics. The results show that randomization of our conjoint attribute values was balanced on multiple pre-treatment covariates. However, we observe some imbalance for a few attributes' values and respondents' features (e.g., profession, and correctly naming the Member of Parliament's party, support for UTM, and turnout in 2019 polls). Therefore, we control for these imbalanced respondent characteristics. We also include all pre-specified covariates in our estimation of the AMCEs in our main results.

```
## Estimates for Appendix Table C.2: Compute balance statistics
↪  of conjoint
## variables and respondents' characteristics robust standard
↪  errors are
## clustered at the individual level.

md0 <- lm_robust(q5_age ~ gender + party + promises + education +
↪  profession, data = master_ps,
    clusters = PARENT_KEY)


md1 <- lm_robust(female ~ gender + party + promises + education +
↪  profession, data = master_ps,
    clusters = PARENT_KEY)

md2 <- lm_robust(primary_or_less ~ gender + party + promises + education +
↪  profession,
    data = master_ps, clusters = PARENT_KEY)

md3 <- lm_robust(employed ~ gender + party + promises + education +
↪  profession, data = master_ps,
    clusters = PARENT_KEY)

md4 <- lm_robust(correctMPname ~ gender + party + promises + education +
↪  profession,
    data = master_ps, clusters = PARENT_KEY)

md5 <- lm_robust(correctMPparty ~ gender + party + promises + education +
↪  profession,
    data = master_ps, clusters = PARENT_KEY)
```

```r
md6 <- lm_robust(close_to_a_party ~ gender + party + promises + education
↪  + profession,
    data = master_ps, clusters = PARENT_KEY)

md7 <- lm_robust(party_dpp ~ gender + party + promises + education +
↪  profession,
    data = master_ps, clusters = PARENT_KEY)

md8 <- lm_robust(party_mcp ~ gender + party + promises + education +
↪  profession,
    data = master_ps, clusters = PARENT_KEY)

md9 <- lm_robust(party_utm ~ gender + party + promises + education +
↪  profession,
    data = master_ps, clusters = PARENT_KEY)

md10 <- lm_robust(turnout_last_elect ~ gender + party + promises +
↪  education + profession,
    data = master_ps, clusters = PARENT_KEY)

md11 <- lm_robust(total_assets ~ gender + party + promises + education +
↪  profession,
    data = master_ps, clusters = PARENT_KEY)

md12 <- lm_robust(ethnic_chewa ~ gender + party + promises + education +
↪  profession,
    data = master_ps, clusters = PARENT_KEY)

md13 <- lm_robust(ethnic_lomwe ~ gender + party + promises + education +
↪  profession,
    data = master_ps, clusters = PARENT_KEY)

md14 <- lm_robust(ethnic_yao ~ gender + party + promises + education +
↪  profession,
    data = master_ps, clusters = PARENT_KEY)

md15 <- lm_robust(conservative ~ gender + party + promises + education +
↪  profession,
    data = master_ps, clusters = PARENT_KEY)
```

```
## Table C.2: Balance statistics of conjoint attributes and respondents'
## characteristics

texreg(list(md0, md1, md2, md3, md4, md5, md6, md7, md8, md9, md10, md11, md12, md13,
    md14, md15), custom.model.names = c("Age", "Female", "Primary educ.or.less",
    "Employed", "Correct MPname", "Correct MPparty", "Close to a party", "DPP", "MCP",
    "UTM", "voted in 2019", "T. assets", "Chewa", "Lomwe", "Yao", "Conservative"),
    custom.coef.names = c("Constant", "Female", "Minor", "Major", "Education", "Road",
        "University", "Maize farmer", "Business owner"), groups = list(Gender = 2,
        Party = 3:4, `Policy focus` = 5:6, Education = 7, `Profession/Occupation` = 8:9),
    include.ci = FALSE, caption = "Balance statistics of conjoint attributes and respondents'
     ↪  characteristics",
    label = "cjtab", center = TRUE, scalebox = 0.5, use.packages = FALSE, caption.above = TRUE,
    custom.note = paste("\\item[\\hspace{-5mm}] %stars."), single.row = FALSE, threeparttable =
     ↪  TRUE)
```

Table C.2: Balance statistics of conjoint attributes and respondents' characteristics

	Age	Female	Primary educ.or.less	Employed	Correct MPname	Correct MPparty	Close to a party	DPP	MCP	UTM	voted in 2019	T. assets	Chewa	Lomwe
Constant	36.98***	0.50***	0.72***	0.15***	0.84***	0.79***	0.72***	0.53***	0.36***	0.07***	0.73***	1.22***	0.43***	0.28***
	(0.41)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.03)	(0.01)	(0.01)
Gender														
Female	0.07	−0.01	0.01	−0.01	0.00	−0.00	0.00	0.01	−0.01	0.00	0.00	−0.01	−0.01	0.00
	(0.18)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Party														
Minor	0.07	−0.00	−0.00	−0.01	0.00	−0.00	0.01	0.00	−0.00	0.00	0.00	0.02	0.00	−0.00
	(0.23)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.02)	(0.01)	(0.01)
Major	0.40	−0.01	0.00	−0.00	0.01*	0.01	0.01	0.01	−0.01	0.00	0.00	0.03	−0.01	0.01
	(0.23)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.02)	(0.01)	(0.01)
Policy focus														
Education	0.04	0.00	0.00	0.00	−0.01	−0.00	0.01	0.01	−0.01	0.00	0.01	0.00	−0.01	−0.00
	(0.23)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.02)	(0.01)	(0.01)
Road	0.48*	0.01	0.00	0.00	−0.01	−0.00	−0.00	0.01	−0.01	0.00	0.01	−0.01	−0.01	0.01
	(0.23)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.02)	(0.01)	(0.01)
Education														
University	−0.03	0.00	0.00	−0.00	0.00	0.00	−0.00	−0.01	0.00	0.01	0.01*	0.01	0.00	−0.00
	(0.19)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Profession/Occupation														
Maize farmer	−0.17	−0.00	0.00	−0.00	−0.01	−0.02**	−0.00	0.01	0.00	−0.01*	−0.02**	0.00	−0.00	0.00
	(0.23)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.02)	(0.01)	(0.01)
Business owner	−0.25	0.00	0.00	−0.00	−0.01	−0.01	−0.01	−0.01	0.02	−0.01*	−0.01	0.00	0.01	−0.01
	(0.23)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.02)	(0.01)	(0.01)
R^2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adj. R^2	0.00	−0.00	−0.00	−0.00	0.00	0.00	−0.00	0.00	0.00	0.00	0.00	−0.00	0.00	0.00
Num. obs.	26868	26868	26868	26868	26868	26868	26688	19188	19188	19188	26868	26868	26868	26868
RMSE	15.24	0.50	0.44	0.34	0.37	0.41	0.45	0.50	0.48	0.26	0.44	1.04	0.49	0.45
N Clusters	2239	2239	2239	2239	2239	2239	2224	1599	1599	1599	2239	2239	2239	2239

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$.

```
## Table C.3: Effect of gender campaigns on selecting a female aspirant
## relative to a man see regression model above
texreg(list(mod0_ncontrols, rmd_int1_any, rmd_int1_ncontrols, rmd_int1), include.ci = FALSE,
    caption = "Effect of gender campaigns on selecting a female aspirant relative to a man",
    label = "maintab_full", center = TRUE, use.packages = FALSE, omit.coef = "(q5_age)|(female)|(primary_or_less)|(employed)|(correctMPname)|(close_to_a_party
    custom.coef.names = c("Intercept", "Female", "Runner-up", "Incumbent", "Education",
        "Road", "University", "Maize farmer", "Business owner", "Treatment (any gender message)",
        "Female x Treatment", "Progress", "Discrimination", "Female x Progress",
        "Female x Discrimination"), groups = list(Constant = 1, Gender = 2, `Party affiliation` = 3:4,
        `Policy focus` = 5:6, Education = 7, `Profession/Occupation` = 8:9, `Interaction:female x any treatment` = 10:11,
        `Interaction: female x campaign type` = 12:15), float.pos = "h", custom.gof.rows = list(Controls = c("No",
        "No", "No", "Yes"), `Constituency fixed effect` = c("No", "No", "No", "Yes")),
    scalebox = 0.7, caption.above = F, custom.header = list(`Respondent's preferred candidate` = 1:4))
```

```
# Figure C.1: Marginal means by gender campaign message

master_ps <- mutate(master_ps, tr_video_ord = factor(tr_video, levels= c("Control", "Low viability", "High viability")))

ms_gr <- summarySE(master_ps,measurevar = "outcome_binary_resp",groupvars = c("tr_video_ord","gender"),na.rm = TRUE)


ggplot(ms_gr, aes(x=tr_video_ord, y=outcome_binary_resp, fill=gender)) +
    geom_bar(position=position_dodge(), stat="identity", colour="black") +
    geom_errorbar(aes(ymin=outcome_binary_resp-ci,
    ymax=outcome_binary_resp+ci),
```

```
                width=.2,                    # Width of the error bars
                position=position_dodge(.9))+
 xlab("Treatment") +
  ylab("Marginal mean") +
  scale_fill_hue(name="Gender" ) +
geom_text(aes(label=round(outcome_binary_resp,3)),
 ↪  position=position_dodge(width=0.9), vjust=2.5)+
scale_fill_manual(values=c("#CCCCCC","#FFFFFF")) +
scale_x_discrete(breaks=c("Control", "Low viability", "High
 ↪  viability"), labels=c("Control", "Discrimination", "Progress"))+
theme_bw()
```

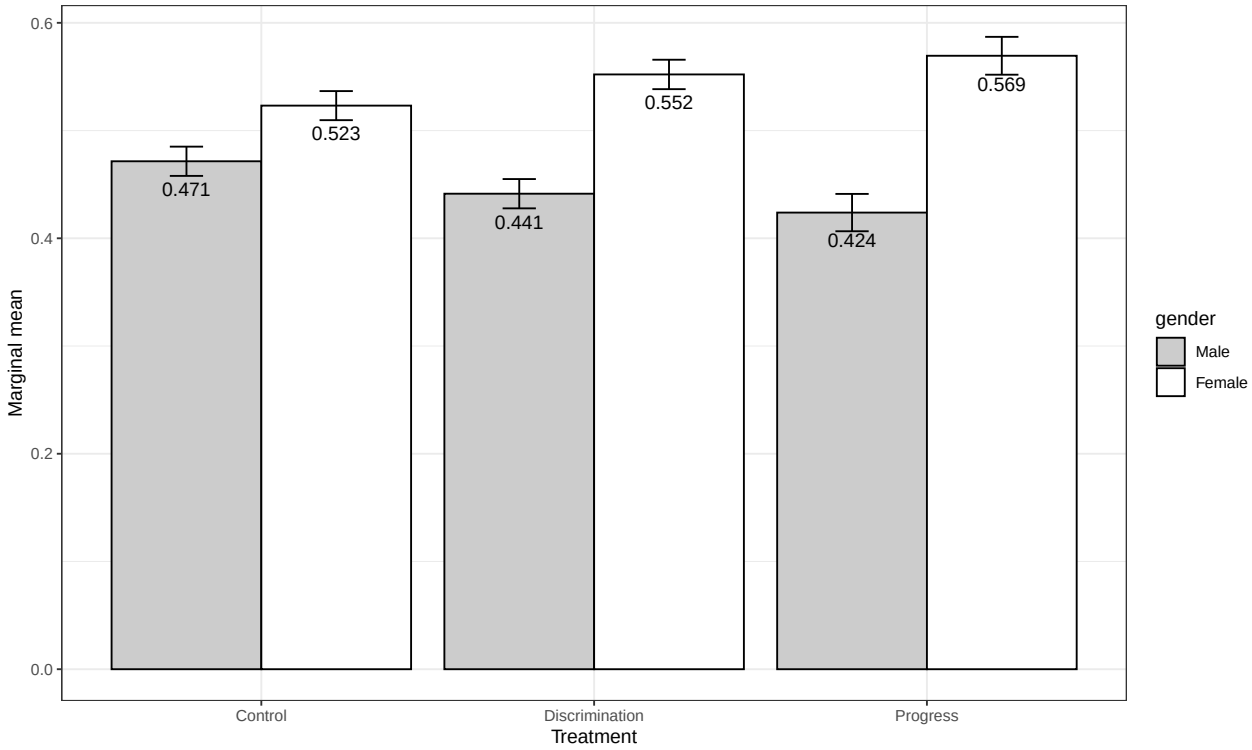

Figure C.1: Marginal means by gender campaign message

	Respondent's preferred candidate			
	Model 1	Model 2	Model 3	Model 4
Constant				
Intercept	0.43***		0.45***	
	(0.01)		(0.01)	
Gender				
Female	0.10***	0.06***	0.06***	0.06***
	(0.01)	(0.01)	(0.01)	(0.01)
Party affiliation				
Runner-up	−0.03***	−0.03***	−0.03***	−0.03***
	(0.01)	(0.01)	(0.01)	(0.01)
Incumbent	0.05***	0.05***	0.05***	0.05***
	(0.01)	(0.01)	(0.01)	(0.01)
Policy focus				
Education	0.09***	0.09***	0.09***	0.09***
	(0.01)	(0.01)	(0.01)	(0.01)
Road	−0.05***	−0.05***	−0.05***	−0.05***
	(0.01)	(0.01)	(0.01)	(0.01)
Education				
University	−0.05***	−0.05***	−0.05***	−0.05***
	(0.01)	(0.01)	(0.01)	(0.01)
Profession/Occupation				
Maize farmer	0.08***	0.08***	0.08***	0.08***
	(0.01)	(0.01)	(0.01)	(0.01)
Business owner	0.00	0.00	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)
Interaction:female x any treatment				
Treatment (any gender message)		−0.03***		
		(0.01)		
Female x Treatment		0.07***		
		(0.01)		
Interaction: female x campaign type				
Progress			−0.04***	−0.04***
			(0.01)	(0.01)
Discrimination			−0.03***	−0.03***
			(0.01)	(0.01)
Female x Progress			0.09***	0.09***
			(0.02)	(0.02)
Female x Discrimination			0.05***	0.05***
			(0.01)	(0.01)
Controls	No	No	No	Yes
Constituency fixed effect	No	No	No	Yes
R^2	0.03	0.04	0.04	0.04
Adj. R^2	0.03	0.03	0.04	0.03
Num. obs.	26868	26592	26868	26592
RMSE	0.49	0.49	0.49	0.49
N Clusters	2239	2216	2239	2216

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

Table C.3: Effect of gender campaigns on selecting a female aspirant relative to a man

C.3 Sample versus population average marginal component effects of gender by campaign message

Table C.4: Attributes of candidates

Candidate Attribute	Attribute levels	Design probabilities	Target population probabilities
Gender	Male [0]	1/2	0.76
	Female [1]	1/2	0.24
Political Party	Independent [0]	1/3	0.56
	Runner-up[1]	1/3	0.26
	Incumbent[2]	1/3	0.26
Profession/Occupation	Maize farmer [0]	1/3	0.05
	Business owner [1]	1/3	0.53
	Teacher [2]	1/3	0.42
Education	Secondary [0]	1/2	0.55
	University [1]	1/2	0.45
Policy Focus	Roads[0]	1/3	0.33
	Education [1]	1/3	0.33
	Boreholes [2]	1/3	0.33

```
# write_out master_ps to estimate sample vesus population AMCE by
 ↪  gender treat.
# use 'an_cj_pop_weight.R'.

write_csv(master_ps, "master_ps.csv")
```

Table C.5: Sample versus population AMCE of gender by treatment

Treatment	Target distribution	Estimate	Std. Error	p value
Full sample	uAMCE	0.095	0.006	$p < 0.001$
	pAMCE	0.093	0.008	$p < 0.001$
Control	uAMCE	0.052	0.010	$p < 0.001$
	pAMCE	0.043	0.013	$p < 0.001$
Progress)	uAMCE	0.146	0.014	$p < 0.001$
	pAMCE	0.149	0.015	$p < 0.001$
Discrimination)	uAMCE	0.111	0.010	$p < 0.001$
	pAMCE	0.110	0.012	$p < 0.001$

Notes: Table C.5 shows the estimates of the uniform average marginal component effects (uAMCE), which assumes the uniform distribution of all attributes' values, and the population average marginal component effects (pAMCE), which adjust for the real-world distribution of other attributes' values. We use the `model_pAMCE` function in `factorEx` package in R. Robust-clustered standard error are estimated using bootstraps (=2000).

D The order of conjoint's question Q1 and Q2 does not affect the impact of gender attribute

As we discussed in section 4.1, we measure our outcomes by asking respondents which candidate profile in a pair they would prefer (Q1). We also asked them which profile they believe others in their constituency would prefer (Q2) to test our mechanism. We randomized the order of these two questions.

We examine in Table D.1 whether the order of asking these two question change our results by further interacting gender and campaign treatments with "Q1 asked first". In Models (1) and (3), we estimate the impact of the order in the complete set of candidates' profile pairs (6) that participants answered. In Models (2) and (3), we restrict the sample to the first candidates' profile pair that participants responded to. In theory, if survey respondents thought of these questions separately, then the order we asked them should not impact our results.

We find that, focusing on the entire or restricted sample, the order of asking Q1 and Q2 does not impact our results, which assuages concerns of a potential order effect.

```
## Estimates the effects of gender by whether respondents chose
↪  their preferred
## candidate first.
```

```
rmd_ord_reg1 <- lm_robust(outcome_binary_resp ~ gender * resp_pref_first *
↪  tr_video +
   party + promises + education + profession + q5_age + female +
↪  primary_or_less +
   employed + correctMPname + close_to_a_party + turnout_last_elect +
↪  total_assets +
   ethnic_chewa + ethnic_lomwe + ethnic_yao + conservative, data =
↪  master_ps, clusters = PARENT_KEY,
   fixed_effects = q2)

rmd_ord_reg1b <- lm_robust(outcome_binary_resp ~ gender * resp_pref_first
↪  * tr_video +
   party + promises + education + profession + q5_age + female +
↪  primary_or_less +
   employed + correctMPname + close_to_a_party + turnout_last_elect +
↪  total_assets +
   ethnic_chewa + ethnic_lomwe + ethnic_yao + conservative, data =
↪  dplyr::filter(master_ps,
   round_num == 1), clusters = PARENT_KEY, fixed_effects = q2)

rmd_ord_reg2 <- lm_robust(outcome_binary_other ~ gender * resp_pref_first
↪  * tr_video +
   party + promises + education + profession + q5_age + female +
↪  primary_or_less +
   employed + correctMPname + close_to_a_party + turnout_last_elect +
↪  total_assets +
   ethnic_chewa + ethnic_lomwe + ethnic_yao + conservative, data =
↪  master_ps, clusters = PARENT_KEY,
   fixed_effects = q2)

rmd_ord_reg2b <- lm_robust(outcome_binary_other ~ gender * resp_pref_first
↪  * tr_video +
   party + promises + education + profession + q5_age + female +
↪  primary_or_less +
   employed + correctMPname + close_to_a_party + turnout_last_elect +
↪  total_assets +
   ethnic_chewa + ethnic_lomwe + ethnic_yao + conservative, data =
↪  dplyr::filter(master_ps,
   round_num == 1), clusters = PARENT_KEY, fixed_effects = q2)
```

```r
# Table D.1: Average marginal component effect of gender
↪  education campaign by
# treatment and order of outcome's question (Q1)

texreg(list(rmd_ord_reg1, rmd_ord_reg1b, rmd_ord_reg2, rmd_ord_reg2b),
↪  include.ci = FALSE,
    caption = "Average marginal component effect of gender education
    ↪  campaign by treatment and order of outcome's question (Q1)",
    label = "maintab_other_order", center = TRUE, use.packages = FALSE,
    ↪  omit.coef =
    ↪  "(q5_age)|(female)|(primary_or_less)|(employed)|(correctMPname)|(close_to_a_party
    custom.coef.names = c("Female", "Q1 asked first ", "Progress",
    ↪  "Discrimination",
        "Female x Q1 asked first", "Female  x progress", "Female x
        ↪  discrimination",
        "Q1 asked first x progress", "Q1 asked first x discrimination",
        ↪  "Female x Q1 asked first x progress",
        "Female x Q1 asked first x discrimination"), float.pos = "h",
        ↪  custom.gof.rows = list(Controls = c("Yes",
        "Yes", "Yes", "Yes"), `Constituency fixed effect` = c("Yes", "Yes",
        ↪  "Yes",
        "Yes"), `Profile pairs` = c("All", "First", "All", "First"), `Other
        ↪  conjoint features` = c("Yes",
        "Yes", "Yes", "Yes")), scalebox = 0.7, caption.above = T,
        ↪  custom.header = list(`Respondent's preferred candidate` = 1:2,
        `Others' preferred candidate` = 3:4))
```

Table D.1: Average marginal component effect of gender education campaign by treatment and order of outcome's question (Q1)

	Respondent's preferred candidate		Others' preferred candidate	
	Model 1	Model 2	Model 3	Model 4
Female	0.06***	0.07*	0.05**	0.07
	(0.01)	(0.03)	(0.01)	(0.04)
Q1 asked first	0.01	0.05	0.01	0.06*
	(0.01)	(0.02)	(0.01)	(0.02)
Progress	−0.04***	−0.09**	−0.04***	−0.08**
	(0.01)	(0.03)	(0.01)	(0.03)
Discrimination	−0.02*	−0.07**	−0.02	−0.03
	(0.01)	(0.02)	(0.01)	(0.02)
Female x Q1 asked first	−0.01	−0.08	−0.01	−0.11*
	(0.02)	(0.05)	(0.02)	(0.05)
Female x progress	0.09***	0.16**	0.08***	0.14*
	(0.02)	(0.06)	(0.02)	(0.06)
Female x discrimination	0.05**	0.13**	0.03	0.06
	(0.02)	(0.05)	(0.02)	(0.05)
Q1 asked first x progress	0.00	0.01	0.00	−0.01
	(0.02)	(0.04)	(0.02)	(0.04)
Q1 asked first x discrimination	−0.00	−0.03	0.00	−0.05
	(0.01)	(0.03)	(0.01)	(0.03)
Female x Q1 asked first x progress	−0.00	0.01	−0.00	0.01
	(0.03)	(0.08)	(0.03)	(0.08)
Female x Q1 asked first x discrimination	−0.00	0.05	−0.00	0.10
	(0.03)	(0.07)	(0.03)	(0.07)
Controls	Yes	Yes	Yes	Yes
Constituency fixed effect	Yes	Yes	Yes	Yes
Profile pairs	All	First	All	First
Other conjoint features	Yes	Yes	Yes	Yes
R^2	0.04	0.07	0.03	0.04
Adj. R^2	0.03	0.06	0.02	0.03
Num. obs.	26592	4432	26592	4432
RMSE	0.49	0.49	0.49	0.49
N Clusters	2216	2216	2216	2216

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

E Heterogeneous effects

E.1 The effects of the education campaigns do not vary by participants's gender and conservative values

In Table E.1, we assess whether the gender campaigns' effects differ by gender of the respondent. First, we do not find that female respondent were more favorable to women aspirants within the conjoint survey. Second, our treatments were no more effective among women than male respondents, suggesting that participants' gender does not drive our main effects.

```
# Effects of gender campaigns by gender of respondent (and their
↪  conservative
# values)

rmd_rg0 <- lm_robust(outcome_binary_resp ~ gender + party + promises +
↪  education +
    profession + q5_age + female + primary_or_less + employed +
↪  correctMPname + close_to_a_party +
    turnout_last_elect + total_assets + ethnic_chewa + ethnic_lomwe +
↪  ethnic_yao,
    data = master_ps, clusters = PARENT_KEY, fixed_effects = q2)


rmd_rg1 <- lm_robust(outcome_binary_resp ~ gender * female + party +
↪  promises + education +
    profession + q5_age + primary_or_less + employed + correctMPname +
↪  close_to_a_party +
    turnout_last_elect + total_assets + ethnic_chewa + ethnic_lomwe +
↪  ethnic_yao,
    data = master_ps, clusters = PARENT_KEY, fixed_effects = q2)


rmd_rg2 <- lm_robust(outcome_binary_resp ~ gender * female * tr_video +
↪  promises +
    education + profession + q5_age + female + primary_or_less + employed +
↪  correctMPname +
    close_to_a_party + turnout_last_elect + total_assets + ethnic_chewa +
↪  ethnic_lomwe +
    ethnic_yao, data = master_ps, clusters = PARENT_KEY, fixed_effects = q2)


rmd_rg3 <- lm_robust(outcome_binary_resp ~ gender * conservative *
↪  tr_video + promises +
    education + profession + q5_age + female + primary_or_less + employed +
↪  correctMPname +
    close_to_a_party + turnout_last_elect + total_assets + ethnic_chewa +
↪  ethnic_lomwe +
    ethnic_yao, data = dplyr::filter(master_ps, female == 1), clusters =
↪  PARENT_KEY,
    fixed_effects = q2)

## Table E.1: Effects of gender campaigns by gender of respondent
↪  (and their
```

```
## conservative values)

texreg(list(rmd_rg0, rmd_rg1, rmd_rg2, rmd_rg3), custom.header = list(`My
 ↪  preferred candidate` = 1:4),
    include.ci = FALSE, caption = "Effects of gender campaigns by gender of
     ↪  respondent",
    label = "maintab_het_gender", center = TRUE, use.packages = FALSE,
     ↪  scalebox = 0.6,
    custom.coef.names = c("Gender (=female)", "Female respondent", "Gender
     ↪  (=female) x Female respondent",
        "Progress", "Discrimination", "Gender (=female) x Progress", "Gender
         ↪  (=female) x Discrimination",
        "Female respondent x progress", "Female respondent x
         ↪  Discrimination", "Gender (=female) x Female respondent  x
         ↪  progress campaign",
        "Gender (=female) x Female respondent  x Discrimination",
         ↪  "Conservative",
        "Gender (=female) x conservative", "Conservative x Progress",
         ↪  "Conservative x Discrimination",
        "Gender (=female) x conservative x Progress", "Gender (=female) x
         ↪  conservative x Discrimination"),
    omit.coef =
     ↪  "(partyMinor)|(partyMajor)|(promisesEducation)|(promisesRoads)|(educationUniversi
     ↪  farmer)|(professionMajor business
     ↪  owner)|(q5_age)|(primary_or_less)|(employed)|(correctMPname)|(close_to_a_party)|(
    custom.gof.rows = list(Controls = c("Yes", "Yes", "Yes", "Yes"),
     ↪  `Constituency fixed effects` = c("Yes",
        "Yes", "Yes", "Yes"), Sample = c("Full", "Full", "Full", "Only
         ↪  Females")),
    float.pos = "h", caption.above = T)
```

E.2 The effects of education campaigns do not vary be the gender of the enumerator

```
### Robustness: Appendix Table E.2: Enumerator's gender does not
 ↪  change the
### causal effects of education campaigns

rmd_int1_ncontrols_enumerator_gender <- lm_robust(outcome_binary_resp ~
 ↪  gender *
```

```
    tr_video * female_enumerator + party + promises + education +
↪   profession, data = master_ps,
    clusters = PARENT_KEY)


texreg(list(rmd_int1_ncontrols_enumerator_gender), custom.header =
↪   list(`My preferred candidate` = 1),
    include.ci = FALSE, caption = "Enumerator's gender does not change the
     ↪  causal effects of education campaigns",
    label = "maintab_het_enumgender", center = TRUE, use.packages = FALSE,
     ↪  custom.coef.names = c("Intercept",
        "Gender (=female)", "Progress", "Discrimination", "Female
         ↪  enumerator", "Gender (=female) x progress campaign",
        "Gender (=female) x Discrimination", "Gender (=female) x Female
         ↪  enumerator",
        "Female enumerator x Progress", "Female enumerator x
         ↪  discrimination", "Gender (=female) x Female enumerator  x
         ↪  Progress",
        "Gender (=female) x Female enumerator  x Discrimination"), omit.coef
         ↪  =
         ↪  "(partyMinor)|(partyMajor)|(promisesEducation)|(promisesRoads)|(educationUniv
         ↪  farmer)|(professionMajor business owner)",
    custom.gof.rows = list(`Other conjoint attributes` = c("Yes"), Controls
     ↪  = c("No"),
        `Constituency fixed effects` = c("No")), float.pos = "h",
         ↪  caption.above = T,
    scalebox = 0.7, )
```

Table E.1: Effects of gender campaigns by gender of respondent

	My preferred candidate			
	Model 1	Model 2	Model 3	Model 4
Gender (=female)	0.10^{***}	0.11^{***}	0.06^{***}	0.06^{**}
	(0.01)	(0.01)	(0.01)	(0.02)
Female respondent	0.00	0.01	−0.00	
	(0.00)	(0.01)	(0.01)	
Gender (=female) x Female respondent		−0.02	−0.00	
		(0.01)	(0.02)	
Progress			-0.05^{***}	−0.03
			(0.01)	(0.02)
Discrimination			-0.04^{***}	−0.02
			(0.01)	(0.01)
Gender (=female) x Progress			0.09^{***}	0.07^{*}
			(0.02)	(0.03)
Gender (=female) x Discrimination			0.07^{***}	0.04
			(0.02)	(0.03)
Female respondent x progress			0.01	
			(0.02)	
Female respondent x Discrimination			0.02	
			(0.02)	
Gender (=female) x Female respondent x progress campaign			−0.01	
			(0.03)	
Gender (=female) x Female respondent x Discrimination			−0.03	
			(0.03)	
Conservative				0.01
				(0.02)
Gender (=female) x conservative				−0.02
				(0.03)
Conservative x Progress				−0.02
				(0.02)
Conservative x Discrimination				0.01
				(0.02)
Gender (=female) x conservative x Progress				0.03
				(0.05)
Gender (=female) x conservative x Discrimination				−0.02
				(0.04)
Controls	Yes	Yes	Yes	Yes
Constituency fixed effects	Yes	Yes	Yes	Yes
Sample	Full	Full	Full	Only Females
R^2	0.03	0.03	0.03	0.03
Adj. R^2	0.03	0.03	0.03	0.03
Num. obs.	26688	26688	26688	13272
RMSE	0.49	0.49	0.49	0.49
N Clusters	2224	2224	2224	1106

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

Table E.2: Enumerator's gender does not change the causal effects of education campaigns

	My preferred candidate
	Model 1
Intercept	0.45^{***}
	(0.01)
Gender (=female)	0.05^{***}
	(0.01)
Progress	-0.04^{***}
	(0.01)
Discrimination	-0.03^{**}
	(0.01)
Female enumerator	0.00
	(0.01)
Gender (=female) x progress campaign	0.09^{***}
	(0.02)
Gender (=female) x Discrimination	0.06^{**}
	(0.02)
Gender (=female) x Female enumerator	0.00
	(0.02)
Female enumerator x Progress	0.00
	(0.02)
Female enumerator x discrimination	0.01
	(0.02)
Gender (=female) x Female enumerator x Progress	-0.00
	(0.03)
Gender (=female) x Female enumerator x Discrimination	-0.01
	(0.03)
Other conjoint attributes	Yes
Controls	No
Constituency fixed effects	No
R^2	0.04
Adj. R^2	0.03
Num. obs.	26868
RMSE	0.49
N Clusters	2239

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

E.3 Do the effects of gender campaigns vary by aspirants' party affiliation?

We also investigate whether the effect of gender campaigns vary with the party affiliation of the hypothetical candidate. Citizens' perceptions of candidates' electoral viability may be shaped not only by the candidate's gender but also by the candidate's party affiliation. Candidates competing on the ticket of a locally dominant party may be deemed more viable than those running as independents or bearing a runner-up party's label. In our context, independents are more likely to win parliamentary seats than individuals who contest on a weak party ticket, but less so than those running for the locally strong party. We hypothesized that gender campaigns might have no additional effect on the vote shares of female candidates competing on locally dominant party platforms because their party label strongly signals their electoral viability. The viability signal from their party label may thus dominate other factors including gender messages. In contrast, we expected that independents and those competing on weaker parties' tickets would benefit the most from progress messages and be hurt the most by discrimination messages.

Table E.3 show our results. As expected, being affiliated with a locally dominant party increased a candidate's chances of being selected by participants by 5 pp ($p < 0.001$) compared to independents (Model 1). Contesting on the runner-up party's ticket reduced a hypothetical aspirant's chances by 3 pp ($p < 0.001$) compared to being independent.

Contrary to our expectation, however, the impact of the campaigns did not differ by the party affiliation of the hypothetical aspirant's gender (the statistically insignificant coefficients on the third order interactions in Model 3). Thus, on average, gender campaigns boost the chances of women candidates irrespective of their party affiliation.

We find similar results if we code whether a respondent is a copartisan or non-copartisan of the hypothetical aspirant or faced with an independent candidate. Table E.4 shows the results. We code respondents' partisanship using the questions: "are you close to a political party?" and if so, "what party is it?" Participants who do not feel close to any party are coded non-partisan. We code a profile as "Copartisan' ' if the respondent's party ID is the same as that of the hypothetical candidate in the profile and "Non-copartisan" if they are partisans but do not share partisanship with the aspirant. We find that, on average, being copartisan increases a hypothetical candidate's share of the vote by 12 pp compared with a non-copartisan. Similar, respondents were 3 pp more likely to pick an independent than a non-copartisan.

```
## Table E.3: Effects of gender education campaigns by party
↪  affiliation of
## hypothetical candidate

rmd_p0 <- lm_robust(outcome_binary_resp ~ gender + party + promises +
↪  education +
   profession + q5_age + female + primary_or_less + employed +
↪  correctMPname + close_to_a_party +
   turnout_last_elect + total_assets + ethnic_chewa + ethnic_lomwe +
↪  ethnic_yao,
```

```
    data = master_ps, clusters = PARENT_KEY, fixed_effects = q2)


rmd_p1 <- lm_robust(outcome_binary_resp ~ gender * party + promises +
↪  education +
    profession + q5_age + female + primary_or_less + employed +
↪  correctMPname + close_to_a_party +
    turnout_last_elect + total_assets + ethnic_chewa + ethnic_lomwe +
↪  ethnic_yao,
    data = master_ps, clusters = PARENT_KEY, fixed_effects = q2)


rmd_p2 <- lm_robust(outcome_binary_resp ~ gender * party * tr_video +
↪  promises +
    education + profession + q5_age + female + primary_or_less + employed +
↪  correctMPname +
    close_to_a_party + turnout_last_elect + total_assets + ethnic_chewa +
↪  ethnic_lomwe +
    ethnic_yao, data = master_ps, clusters = PARENT_KEY, fixed_effects = q2)



texreg(list(rmd_p0, rmd_p1, rmd_p2), custom.header = list(`Respondent's
↪  preferred candidate` = 1:3),
    include.ci = FALSE, caption = "Effects of gender education campaigns by
     ↪  party affiliation of  hypothetical candidate",
    label = "maintab_het_party", center = TRUE, use.packages = FALSE,
     ↪  scalebox = 0.75,
    custom.coef.names = c("Gender (=female)", "Runner up party", "Incumbent
     ↪  party",
        "Gender (=female) x minor party", "Gender (=female) x major party",
         ↪  "Progress",
        "Discrimination", "Gender (=female) x Progress", "Gender (=female) x
         ↪  Discrimination",
        "Runner-up party x Progress", "Incumbent party x Progress",
         ↪  "Runner-up party x Discrimination",
        "Incumbent party x Discrimination", "Gender (=female) x runner-up
         ↪  party x Progress",
        "Gender (=female) x incumbent party x Progress", "Gender (=female) x
         ↪  runner-up party x Discrimination",
        "Gender (=female) x incumbent party x Discrimination"), omit.coef =
         ↪  "(promisesEducation)|(promisesRoads)|(educationUniversity)|(professionMaize
         ↪  farmer)|(professionMajor business
         ↪  owner)|(q5_age)|(female)|(primary_or_less)|(employed)|(correctMPname)|(close_
```

```
    custom.gof.rows = list(Controls = c("Yes", "Yes", "Yes"), `Constituency
     ↪  fixed effects` = c("Yes",
        "Yes", "Yes")), float.pos = "h", caption.above = T)
```

Table E.3: Effects of gender education campaigns by party affiliation of hypothetical candidate

	Respondent's preferred candidate		
	Model 1	Model 2	Model 3
Gender (=female)	0.10^{***}	0.10^{***}	0.06^{**}
	(0.01)	(0.01)	(0.02)
Runner up party	-0.03^{***}	-0.03^{*}	-0.03
	(0.01)	(0.01)	(0.02)
Incumbent party	0.05^{***}	0.06^{***}	0.05^{**}
	(0.01)	(0.01)	(0.02)
Gender (=female) x minor party		-0.00	0.00
		(0.01)	(0.02)
Gender (=female) x major party		-0.01	-0.01
		(0.01)	(0.02)
Progress			-0.04^{*}
			(0.02)
Discrimination			-0.04^{*}
			(0.02)
Gender (=female) x Progress			0.09^{***}
			(0.03)
Gender (=female) x Discrimination			0.06^{*}
			(0.02)
Runner-up party x Progress			0.00
			(0.03)
Incumbent party x Progress			-0.01
			(0.03)
Runner-up party x Discrimination			0.00
			(0.02)
Incumbent party x Discrimination			0.03
			(0.02)
Gender (=female) x runner-up party x Progress			-0.02
			(0.04)
Gender (=female) x incumbent party x Progress			-0.00
			(0.04)
Gender (=female) x runner-up party x Discrimination			-0.01
			(0.03)
Gender (=female) x incumbent party x Discrimination			-0.01
			(0.03)
Controls	Yes	Yes	Yes
Constituency fixed effects	Yes	Yes	Yes
R^2	0.03	0.03	0.04
Adj. R^2	0.03	0.03	0.03
Num. obs.	26688	26688	26688
RMSE	0.49	0.49	0.49
N Clusters	2224	2224	2224

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

```r
master_ps <- mutate(master_ps, competitive = ifelse(q2 == 191 | q2 == 44
↪  | q2 ==
    60 | q2 == 59 | q2 == 47 | q2 == 193, 1, 0))


tempdat <- tibble(est = NA_real_, se = NA_real_)

constlist <- sort(unique(master_ps$q2))

for (i in 0:1) {
    ## get interaction estimates

    temp_mod0 <- lm_robust(outcome_binary_resp ~ gender * tr_video + party
↪  + promises +
        education + profession + q5_age + female + primary_or_less +
↪  employed + correctMPname +
        close_to_a_party + turnout_last_elect + total_assets + ethnic_chewa
↪  + ethnic_lomwe +
        ethnic_yao + conservative + female_enumerator, data =
↪  filter(master_ps, competitive ==
        i), clusters = PARENT_KEY)

    temp_mod1 <- lm_robust(outcome_binary_resp ~ gender * tr_video_lv +
↪  party + promises +
        education + profession + q5_age + female + primary_or_less +
↪  employed + correctMPname +
        close_to_a_party + turnout_last_elect + total_assets + ethnic_chewa
↪  + ethnic_lomwe +
        ethnic_yao + conservative + female_enumerator, data =
↪  filter(master_ps, competitive ==
        i), clusters = PARENT_KEY)

    dff_amces_temp <- c(temp_mod0$coefficients["genderFemale:tr_videoLow
↪  viability"],
        temp_mod0$coefficients["genderFemale:tr_videoHigh viability"],
↪  temp_mod1$coefficients["genderFemale:tr_video_lvHigh viability"])

    se_dff_amces_temp <- c(temp_mod0$std.error["genderFemale:tr_videoLow
↪  viability"],
        temp_mod0$std.error["genderFemale:tr_videoHigh viability"],
↪  temp_mod1$std.error["genderFemale:tr_video_lvHigh viability"])
```

```
    dff_mtab_amce_temp = tibble(est = dff_amces_temp, se =
↪   se_dff_amces_temp)

    tempdat <- bind_rows(tempdat, dff_mtab_amce_temp)
}


# competition


tempdat_mut <- tempdat %>%
    na.omit() %>%
    mutate(diff = rep(c("Control vs. Low viability", "Control vs. High
     ↪  viability",
        "Low vs. high viability"), 2), competition = rep(c("Uncompetitive",
         ↪  "Competitive"),
        each = 3), posx = c(0.8, 1, 1.2, 1.8, 2, 2.2))
```

```
## Table E.4: Effects of gender campaigns by shared partisanship
↪  between
## respondent and profile candidate

master_ps <- master_ps %>%
    dplyr::mutate(resp_party = ifelse(q27 == 1, "Non-partisan",
↪   ifelse(q28 == 2,
        "DPP", ifelse(q28 == 4, "MCP", ifelse(q28 == 18, "UTM",
         ↪  ifelse(q28 == 8 |
            q28 == 9 | q28 == 12 | q28 == 16 | q28 == 19, "Other-party",
↪   NA))))))  %>%
    dplyr::mutate(party_id = ifelse(q2 == 143 & party == "Major" | q2 ==
↪   140 & party ==
        "Major" | q2 == 47 & party == "Major" | q2 == 44 & party ==
         ↪  "Major" | q2 ==
        193 & party == "Major" | q2 == 191 & party == "Major" | q2 == 170
         ↪  & party ==
        "Major" | q2 == 169 & party == "Major" | q2 == 60 & party ==
         ↪  "Minor", "DPP",
        ifelse(q2 == 49 & party == "Major" | q2 == 50 & party == "Major"
         ↪  | q2 ==
            60 & party == "Major" | q2 == 59 & party == "Major" | q2 ==
             ↪  193 & party ==
```

```
            "Minor" | q2 == 191 & party == "Minor", "MCP", ifelse(!(q2 ==
            ↪  193 | q2 ==
            191 | q2 == 60) & party == "Minor", "UTM", "Independent"))))
            ↪  %>%
    dplyr::mutate(copartisan = factor(ifelse(resp_party == party_id,
↪   "Copartisan",
        ifelse(party_id != "Independent" & resp_party != "Non-partisan",
        ↪  "Non-copartisan",
            "Independent")), levels = c("Copartisan", "Non-copartisan",
            ↪  "Independent"))) %>%
    dplyr::mutate(copartisan = relevel(copartisan, ref =
↪   "Non-copartisan"))



# Respondent's preferred candidate

rmd_cp0 <- lm_robust(outcome_binary_resp ~ gender + copartisan + promises
↪   + education +
    profession + q5_age + female + primary_or_less + employed +
↪   correctMPname + close_to_a_party +
    turnout_last_elect + total_assets + ethnic_chewa + ethnic_lomwe +
↪   ethnic_yao,
    data = master_ps, clusters = PARENT_KEY, fixed_effects = q2)


rmd_cp1 <- lm_robust(outcome_binary_resp ~ gender * tr_video + copartisan
↪   + promises +
    education + profession + q5_age + primary_or_less + employed +
↪   correctMPname +
    close_to_a_party + turnout_last_elect + total_assets + ethnic_chewa +
↪   ethnic_lomwe +
    ethnic_yao, data = master_ps, clusters = PARENT_KEY, fixed_effects = q2)


rmd_cp2 <- lm_robust(outcome_binary_resp ~ gender * tr_video * copartisan
↪   + promises +
    education + profession + q5_age + female + primary_or_less + employed +
↪   correctMPname +
    close_to_a_party + turnout_last_elect + total_assets + ethnic_chewa +
↪   ethnic_lomwe +
    ethnic_yao, data = master_ps, clusters = PARENT_KEY, fixed_effects = q2)
```

```
texreg(list(rmd_cp0, rmd_cp1, rmd_cp2), custom.header = list(`My preferred
 ↪  candidate` = 1:3),
    include.ci = FALSE, caption = "Effects of gender campaigns by shared
     ↪  partisanship between respondent and profile candidate",
    label = "maintab_het_shardparty", center = TRUE, use.packages = FALSE,
     ↪  scalebox = 0.8,
    custom.coef.names = c("Gender (=female)", "Copartisan profile",
     ↪  "Independent candidate profile",
        "Progress campaign", "Discrimination", "Gender (=female) x
         ↪  Progress", "Gender (=female) x Discrimination",
        "Gender (=female) x Copartisan profile", "Gender (=female) x
         ↪  Independent candidate profile",
        "Progress x copartisan profile ", "Discrimination x copartisan
         ↪  profile",
        "Progress x Independent candidate profile ", "Discrimination x
         ↪  Independent candidate profile",
        "Gender (=female) x Progress x copartisan", "Gender (=female) x
         ↪  Discrimination x copartisan",
        "Gender (=female) x Progress x Independent", "Gender (=female) x
         ↪  Discrimination x Independent profile"),
    omit.coef =
     ↪  "(partyMinor)|(partyMajor)|(promisesEducation)|(promisesRoads)|(educationUniversi
     ↪  farmer)|(professionMajor business
     ↪  owner)|(q5_age)|(primary_or_less)|(employed)|(correctMPname)|(close_to_a_party)|
    custom.gof.rows = list(Controls = c("Yes", "Yes", "Yes"), `Constituency
     ↪  fixed effects` = c("Yes",
        "Yes", "Yes")), float.pos = "h", caption.above = T)
```

Table E.4: Effects of gender campaigns by shared partisanship between respondent and profile candidate

	My preferred candidate		
	Model 1	Model 2	Model 3
Gender (=female)	0.10^{***}	0.05^{***}	0.05^{*}
	(0.01)	(0.01)	(0.02)
Copartisan profile	0.12^{***}	0.12^{***}	0.12^{***}
	(0.01)	(0.01)	(0.02)
Independent candidate profile	0.03^{**}	0.03^{**}	0.03
	(0.01)	(0.01)	(0.02)
Progress campaign		-0.04^{***}	-0.03
		(0.01)	(0.02)
Discrimination		-0.03^{***}	-0.03
		(0.01)	(0.02)
Gender (=female) x Progress		0.09^{***}	0.07^{*}
		(0.02)	(0.03)
Gender (=female) x Discrimination		0.05^{***}	0.07^{*}
		(0.01)	(0.03)
Gender (=female) x Copartisan profile			-0.00
			(0.03)
Gender (=female) x Independent candidate profile			0.01
			(0.02)
Progress x copartisan profile			-0.01
			(0.03)
Discrimination x copartisan profile			0.01
			(0.03)
Progress x Independent candidate profile			-0.01
			(0.03)
Discrimination x Independent candidate profile			-0.01
			(0.02)
Gender (=female) x Progress x copartisan			0.01
			(0.04)
Gender (=female) x Discrimination x copartisan			-0.03
			(0.04)
Gender (=female) x Progress x Independent			0.03
			(0.04)
Gender (=female) x Discrimination x Independent profile			-0.01
			(0.03)
Controls	Yes	Yes	Yes
Constituency fixed effects	Yes	Yes	Yes
R^2	0.04	0.04	0.04
Adj. R^2	0.04	0.04	0.04
Num. obs.	26616	26616	26616
RMSE	0.49	0.49	0.49
N Clusters	2218	2218	2218

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

E.4 Gender campaigns' effects by respondents' experience with a female MP

```
## Table E.5: Effects of gender campaigns by experience with female legislator

master_ps <- master_ps%>%

 dplyr::mutate(current_mp_female=ifelse(q2==44|q2==193|q2==50|q2==169,1,0),
 const_have_had_femaleMP=ifelse(q2==44|q2==193|q2==50|q2==169|q2==140|q2==47,1,0)
  ) ## code whether constituency has had a female MP


## regression models estimating the effect by respondents's experience with a female legislator

rmd_fMP1 <-
 lm_robust(outcome_binary_resp~gender*tr_video*current_mp_female+party+promises+edu
 ethnic_chewa+ ethnic_lomwe + ethnic_yao,data=master_ps,clusters =
 PARENT_KEY)


rmd_fMP2 <-
 lm_robust(outcome_binary_resp~gender*tr_video*const_have_had_femaleMP+party+promis
 ethnic_chewa+ ethnic_lomwe + ethnic_yao,data=master_ps,clusters =
 PARENT_KEY)



texreg(list(rmd_fMP1,rmd_fMP2),
       custom.header = list("My preferred candidate" = 1:2),include.ci =
        FALSE,caption = "Effects of gender campaigns by experience with
        female legislator",label = "maintab_het_pastfMP",center =
        TRUE,use.packages = FALSE,scalebox = 0.7,omit.coef =
        "(partyMinor)|(partyMajor)|(promisesEducation)|(promisesRoads)|(educationUnive
        farmer)|(professionMajor business
        owner)|(q5_age)|(primary_or_less)|(employed)|(correctMPname)|(close_to_a_party
       ,custom.coef.names= c("Intercept","Gender (=female)","Progress
 campaign","Discrimination", "Incumbent female MP", "Gender (=female) x
 Progress","Gender (=female) x Discrimination","Gender (=female) x
 Incumbent female MP", "Progress x Incumbent female MP ","Discrimination
 x Incumbent female MP", "Gender (=female) x Progress x Incumbent female
 MP","Gender (=female) x Discrimination x Incumbent female
 MP","Prior/incumbent female MP","Gender (=female) x Prior/incumbent
 female MP","Progress x Prior/incumbent female MP","Discrimination x
 Prior/incumbent female MP", "Gender (=female) x Progress x
 Prior/incumbent female MP","Gender (=female) x Discrimination x
 Prior/incumbent female MP"),
```

```
    custom.gof.rows=list("Controls"=c("Yes", "Yes"), "Constituency fixed
     ↪  effects"= c("No", "No")),float.pos = "h",caption.above = T)
```

Table E.5: Effects of gender campaigns by experience with female legislator

	My preferred candidate	
	Model 1	Model 2
Intercept	0.45^{***}	0.45^{***}
	(0.01)	(0.01)
Gender (=female)	0.05^{***}	0.05^{***}
	(0.01)	(0.01)
Progress campaign	-0.04^{***}	-0.05^{***}
	(0.01)	(0.01)
Discrimination	-0.03^{**}	-0.03^{**}
	(0.01)	(0.01)
Incumbent female MP	−0.02	
	(0.01)	
Gender (=female) x Progress	0.09^{***}	0.10^{***}
	(0.02)	(0.02)
Gender (=female) x Discrimination	0.06^{**}	0.06^{**}
	(0.02)	(0.02)
Gender (=female) x Incumbent female MP	0.03	
	(0.02)	
Progress x Incumbent female MP	−0.00	
	(0.02)	
Discrimination x Incumbent female MP	0.01	
	(0.02)	
Gender (=female) x Progress x Incumbent female MP	0.00	
	(0.04)	
Gender (=female) x Discrimination x Incumbent female MP	−0.01	
	(0.03)	
Prior/incumbent female MP		−0.00
		(0.01)
Gender (=female) x Prior/incumbent female MP		0.01
		(0.02)
Progress x Prior/incumbent female MP		0.01
		(0.02)
Discrimination x Prior/incumbent female MP		0.02
		(0.02)
Gender (=female) x Progress x Prior/incumbent female MP		−0.03
		(0.03)
Gender (=female) x Discrimination x Prior/incumbent female MP		−0.03
		(0.03)
Controls	Yes	Yes
Constituency fixed effects	No	No
R^2	0.04	0.04
Adj. R^2	0.03	0.03
Num. obs.	26688	26688
RMSE	0.49	0.49
N Clusters	2224	2224

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

```r
# Table E.6: Discrimination topic prevalence by gender


dat_meta_theta_ln <- dplyr::mutate(dat_meta_theta_ln)

md1_tdis <- lm(Probability ~ tr_video * q4, data =
 ↪  dplyr::filter(dat_meta_theta_ln,
    tr_video != "Control" & Topic == "Topic 1"))

md2_tdis <- lm(Probability ~ tr_video * q4, data =
 ↪  dplyr::filter(dat_meta_theta_ln,
    tr_video != "Control" & Topic == "Topic 3"))

md3_tdis <- lm(Probability ~ tr_video * q4, data =
 ↪  dplyr::filter(dat_meta_theta_ln,
    tr_video != "Control" & Topic == "Topic 10"))


texreg(list(md1_tdis, md2_tdis, md3_tdis), custom.header = list(Topic =
 ↪  1:3), include.ci = FALSE,
    caption = "Discrimination topic prevalence by gender", label =
     ↪  "topicp_by_gend",
    center = TRUE, use.packages = FALSE, scalebox = 0.8, custom.coef.names =
     ↪  c("Intercept",
        "Discrimination", "Male respondent", "Discrimination x male
         ↪  respondent"),
    custom.model.names = c("Encourage women to run", "Women face
     ↪  discrimination",
        "Women should take part"), float.pos = "h", caption.above = T)
```

Table E.6: Discrimination topic prevalence by gender

	Topic		
	Encourage women to run	Women face discrimination	Women should take part
Intercept	0.11***	0.06***	0.09***
	(0.00)	(0.00)	(0.00)
Discrimination	0.05***	0.01***	0.01
	(0.00)	(0.00)	(0.00)
Male respondent	0.00	−0.00	−0.00
	(0.00)	(0.00)	(0.00)
Discrimination x male respondent	−0.00	0.00	0.01
	(0.00)	(0.00)	(0.00)
R^2	0.26	0.02	0.02
Adj. R^2	0.25	0.02	0.01
Num. obs.	1365	1365	1365

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

F Mechanisms

F.1 Results for whom others will vote for in conjoint survey (Q2)

```
## Table F.1: Effect of gender campaigns on which candidate
 ↪  respondent believe
## others would choose see models in paper


texreg(list(mod0_ncontrols_other, rmd_int1_any_other,
 ↪  rmd_int1_ncontrols_other, rmd_int1_other),
    include.ci = FALSE, caption = "Effect of gender campaigns on which
     ↪  candidate respondent believe others would choose",
    label = "maintab_other", center = TRUE, use.packages = FALSE, omit.coef
     ↪  =
     ↪  "(q5_age)|(female)|(primary_or_less)|(employed)|(correctMPname)|(close_to_a_party
    custom.coef.names = c("Intercept", "Female", "Runner-up", "Incumbent",
     ↪  "Education",
        "Road", "University", "Maize farmer", "Business owner", "Treatment
         ↪  (any gender message)",
        "Female x Treatment", "Progress", "Discrimination", "Female x
         ↪  Progress",
        "Female x Discrimination"), groups = list(Constant = 1, Gender = 2,
         ↪  `Party affiliation` = 3:4,
        `Policy focus` = 5:6, Education = 7, `Profession/Occupation` = 8:9,
         ↪  `Interaction:female x any treatment` = 10:11,
```

```
    `Interaction: female x campaign type` = 12:15), float.pos = "h",
     ↪  custom.gof.rows = list(Controls = c("No",
    "No", "No", "Yes"), `Constituency fixed effect` = c("No", "No",
     ↪  "No", "Yes")),
  scalebox = 0.7, caption.above = T, custom.header = list(`Whom others
   ↪  would prefer` = 1:4))
```

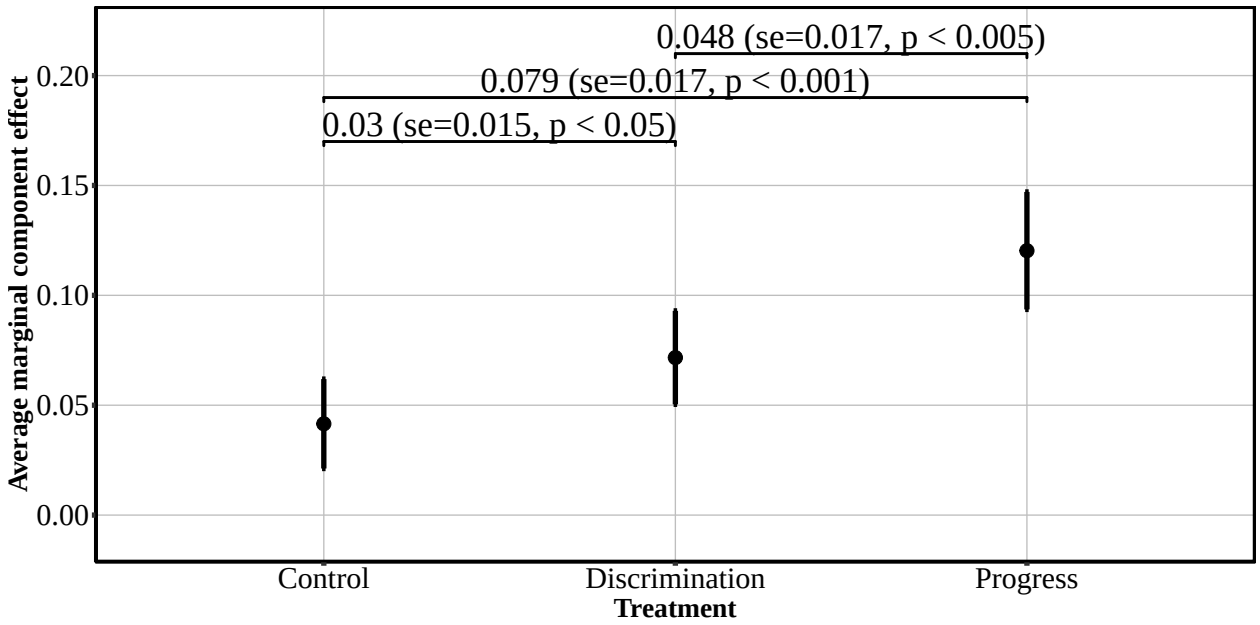

Figure F.1: Average marginal component effect of gender (female) by treatment (whom others in constituency would vote for (Q2))

Table F.1: Effect of gender campaigns on which candidate respondent believe others would choose

	Whom others would prefer			
	Model 1	Model 2	Model 3	Model 4
Constant				
Intercept	0.44***	0.46***	0.46***	
	(0.01)	(0.01)	(0.01)	
Gender				
Female	0.07***	0.04***	0.04***	0.04***
	(0.01)	(0.01)	(0.01)	(0.01)
Party affiliation				
Runner-up	−0.03***	−0.03***	−0.03***	−0.03***
	(0.01)	(0.01)	(0.01)	(0.01)
Incumbent	0.07***	0.07***	0.07***	0.07***
	(0.01)	(0.01)	(0.01)	(0.01)
Policy focus				
Education	0.03***	0.03***	0.03***	0.03***
	(0.01)	(0.01)	(0.01)	(0.01)
Road	−0.04***	−0.04***	−0.04***	−0.04***
	(0.01)	(0.01)	(0.01)	(0.01)
Education				
University	−0.05***	−0.05***	−0.05***	−0.05***
	(0.01)	(0.01)	(0.01)	(0.01)
Profession/Occupation				
Maize farmer	0.09***	0.09***	0.09***	0.09***
	(0.01)	(0.01)	(0.01)	(0.01)
Business owner	0.01	0.01	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Interaction:female x any treatment				
Treatment (any gender message)		−0.03***		
		(0.01)		
Female x Treatment		0.05***		
		(0.01)		
Interaction: female x campaign type				
Progress			−0.04***	−0.04***
			(0.01)	(0.01)
Discrimination			−0.02*	−0.02*
			(0.01)	(0.01)
Female x Progress			0.08***	0.08***
			(0.02)	(0.02)
Female x Discrimination			0.03*	0.03*
			(0.01)	(0.01)
Controls	No	No	No	Yes
Constituency fixed effect	No	No	No	Yes
R^2	0.02	0.02	0.02	0.03
Adj. R^2	0.02	0.02	0.02	0.02
Num. obs.	26868	26868	26868	26592
RMSE	0.49	0.49	0.49	0.49
N Clusters	2239	2239	2239	2216

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

F.2 Manipulation check using open-ended questions

Topic labels and description

1. **Topic 1: Encourage women to run (discouragement)** The primary message is that we should encourage women to runs as MPs. Secondarily, the point in many responses is that women need encouragement from voters, or sometimes from men, in order to run and to succeed in politics, as they are being discouraged, for instance by parties. E.g., "Female candidate was discouraged after not given support by her party this made these people to go and encourage her"

2. **Topic 2: Women face discrimination** Topic 2 focuses on how women are being discriminated in politics. Secondarily, many respondents also stress that women can bring development in spite of discrimination or that the sidelining of women in politics is problematic because female politicians bring development. E.g., "The video was showing that women are sidelined in politics although they're the ones who bring more development"

3. **Topic 3: Women should take part in politics** Topic 3 centers on "taking part". Respondents express that women should take part in elections, that women can take part in development, or that women should be encouraged to take part in politics. E.g., "She has learnt that women can take part in development, and they can also take part in elections"

4. **Topic 4: Women bring development** Topic 4 stresses women MPs ability to bring development to their constituency. Some respondents express that women are more likely to successfully secure local development than are men. E.g., "In a short period of time, the female MP had developed her community more than a male MP would have"

5. **Topic 5: Women are more capable** Topic 5 is more generically about women being powerful and capable of succeeding in politics. E.g., "We should never underestimate the power and abilities of women"

6. **Topic 6: Women candidates superior to men** In topic 6, respondents emphasize women politicians as superior to men and stress that women work hard and are less corrupt. E.g., "Women are better placed to bring about development than men, and are more concerned about people than men."

7. **Topic 7: Vote for women!** The main message in topic 7 is that we should vote for women. Some respondents stress that it is important to vote for women because they are superior politicians or because they can secure local development. E.g., "It's best to vote for women as Members Of Parliament in our nation because they are approachable and they make tangible developments when they're in office"

8. **Topic 8: Money and debt** In topic 8, respondents describe a discussion about lending money and paying back debts. E.g., "Quarrels because one failed to pay his debt in time."

9. **Topic 9: Verbal disagreement** In Topic 9, respondents describe two people arguing ownership and breaking of a basin. E.g., "Disagreements between two people arguing to possess a basin which is very durable"

10. **Topic 10: Learning** Topic 11 describes learning in different ways, including learning that women can take part in politics, learning to resolve conflicts, learning about the quality of a plastic basin, or learning the importance of paying back debt. E.g., "He has learnt that the bursin is of good quality' '

11. **Topic 11: Commercial/unclear** This topic covers two different types of responses: i) the quality of a plastic basin, ii) the respondent does not know what the video was about or does not recall it.

```
plot.STM(viaMod, type = "labels", labeltype = "frex", topic.names =
 ↪  c("Encouragement",
    "Commercial and unclear", "Discrimination", "Women bring development",
     ↪  "Women are capable",
    "Vote for women!", "Money and debt", "Women candidates superior to men",
     ↪  "Disagreement",
    "Women should take part", "Learning"), text.cex = 2)
```

Encouragement
encourag, contest, stand, candid, come, seat, corrupt, societi, leader, mps, development, support, therefor, gain, agre, contribut, parliamentari, charact, politician, discourag

Commercial and unclear
video, show, busi, cant, anyth, rememb, qualiti, recal, advertis, magic, plastic, compani, long, get, advert, violenc, tri, product, didnt, alway

Discrimination
high, put, polit, realli, represent, particip, happi, care, see, bring, tangibl, abl, affair, despit, live, undermin, symbol, govern, compet, basic

Women bring development
done, male, develop, femal, progress, activ, constitu, period, short, repres, project, forgotten, greater, talk, let, everyth, nation, implement, differ, improv

Women are capable
women, underestim, woman, abil, capac, empow, equal, area, parliamentarian, can, chanc, rule, essenti, discuss, consider, never, access, number, seen, said

Vote for women!
parliament, villag, bridg, agricultur, empower, member, leadership, power, road, capabl, vote, construct, goal, neighbour, countri, best, ladi, brought, everi, honest

Money and debt
back, pay, owe, debt, borrow, money, exchang, payment, somebodi, owner, someon, return, abasin, fight, buy, untim, guy, due, angri, els

Women candidates superior to men
work, men, job, great, unlik, certain, win, gender, approach, potenti, communiti, fund, resourc, better, public, there, misappropri, reachabl, perform, compar

Disagreement
argu, harsh, sell, basin, disagr, seller, expens, disput, break, friend, went, buyer, strong, portray, durabl, ground, enquir, man, bought, price

Women should take part
good, problem, discrimin, elect, help, part, also, import, campaign, farm, hold, steal, emphasi, focus, take, heart, must, run, mayb, decis

Learning
thing, learnt, matter, behavior, give, bursin, resolv, chang, properti, malawian, without, experi, messag, cultur, conflict, seem, simpl, avoid, economi, misbehav

Figure F.2: Key words associated with topics identified in open-ended response

```r
topic1_examp <- findThoughts(viaMod, texts = meta$q23, n = 25)

par(mfrow = c(1, 3), mar = c(0.5, 0.5, 1, 0.5))

plotQuote(topic1_examp$docs[[1]], width = 50, main = "Topic 1: Encourage women to run ",
    text.cex = 2, cex.main = 3)
plotQuote(topic1_examp$docs[[3]], width = 50, main = "Topic 2: Women face discrimination",
    text.cex = 2, cex.main = 3)

plotQuote(topic1_examp$docs[[10]], width = 50, main = "Topic 3: Women should take part in
↪  politics",
    text.cex = 2, cex.main = 3)
```

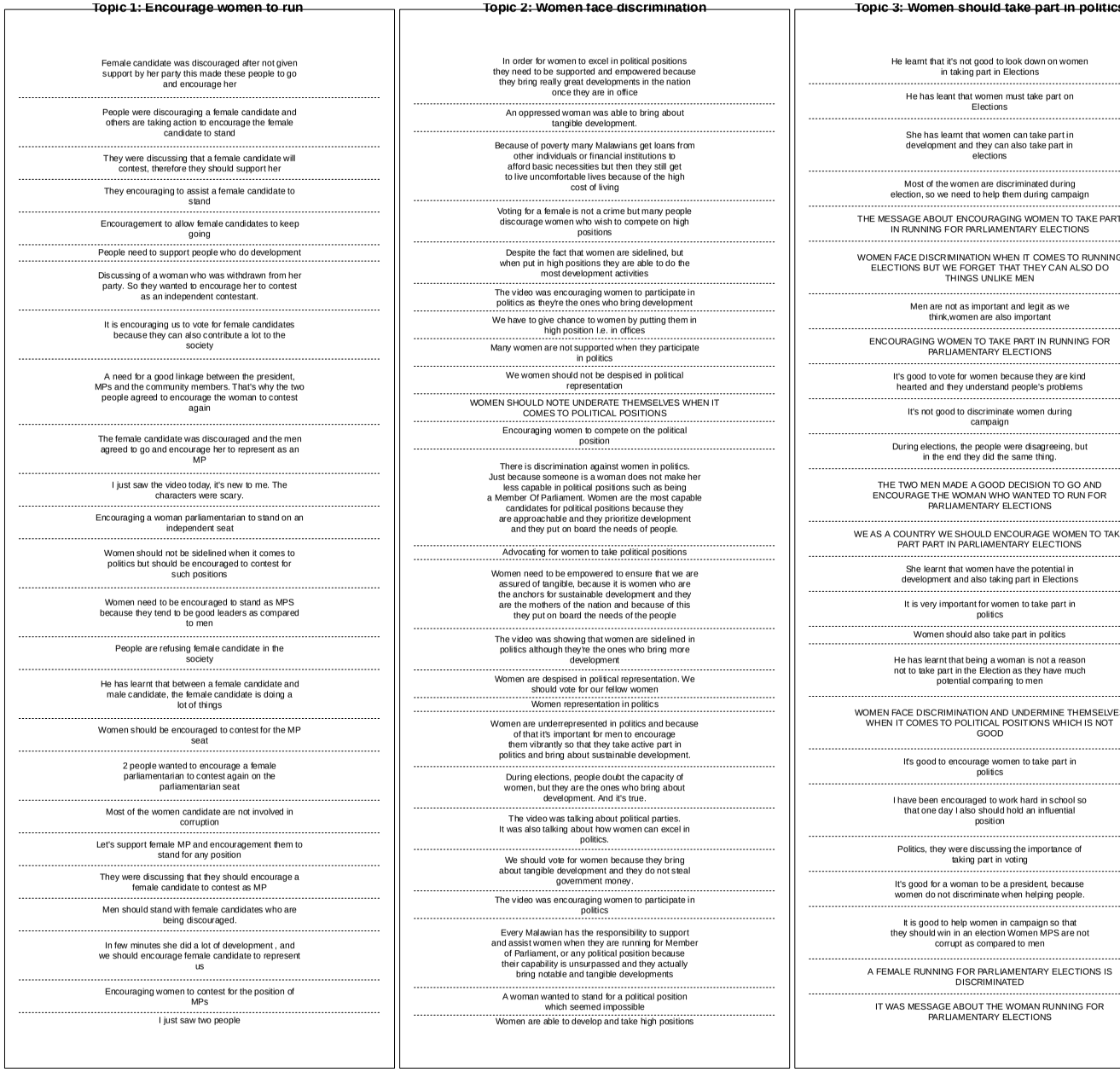

Figure F.3: Examples of texts topics respondents exposed to the discrimination campaign were more likely to re
those in the progress treatment (Topic 1, 2, and 3)

```r
par(mfrow = c(1, 3), mar = c(0.5, 0.5, 1, 0.5))

plotQuote(topic1_examp$docs[[4]], width = 50, main = "Topic 4: Women bring development",
    text.cex = 2, cex.main = 3)

plotQuote(topic1_examp$docs[[5]], width = 50, main = "Topic 5: Women are capable",
    text.cex = 2, cex.main = 3)

plotQuote(topic1_examp$docs[[8]], width = 50, main = "Topic 6: Women candidates superior to men",
    text.cex = 2, cex.main = 3)
```

Figure F.4: Examples of texts topics respondents exposed to the progress campaign were more likely to recall rel
the discrimination treatment (Topics 4, 5, and 6)

```r
## Table F.2: Crosstabulation of topics by treatment


tab_topic <- table(dat_meta_theta_uniq$maxtopic_label,
 ↪  dat_meta_theta_uniq$tr_video)

colnames(tab_topic) <- c("Control", "Progress", "Discrimination")

topics_label <- c("Encourage\nwomen to contest in elections", "Commercial
 ↪  and unclear",
    "Women face discrimination", "Women bring development", "Women are more
     ↪  capable",
    "Vote for women!", "Money and debt", "Women candidates superior to men",
     ↪  "Verbal disagreement",
    "Women should take part\nin politics", "Learning", "Number of
     ↪  respondents (N=)")


rbind(prop.table(tab_topic, 2), Total = colSums(tab_topic)) %>%
    as_tibble() %>%
    dplyr::mutate(Topic = topics_label) %>%
    dplyr::select(Topic, Control:Discrimination) %>%
    kbl(digits = 3, caption = "Crosstabulation of topics by treatment",
     ↪  booktabs = T,
        label = "topic_crosstab", position = "h") %>%
    kable_classic(full_width = T, font_size = 10) %>%
    column_spec(1, width = "25em")
```

Table F.2: Crosstabulation of topics by treatment

Topic	Control	Progress	Discrimination
Encourage women to contest in elections	0.000	0.014	0.143
Commercial and unclear	0.169	0.043	0.027
Women face discrimination	0.001	0.006	0.013
Women bring development	0.000	0.351	0.232
Women are more capable	0.000	0.544	0.528
Vote for women!	0.000	0.019	0.020
Money and debt	0.279	0.000	0.000
Women candidates superior to men	0.000	0.012	0.011
Verbal disagreement	0.528	0.000	0.000
Women should take part in politics	0.000	0.008	0.026
Learning	0.023	0.004	0.000
Number of respondents (N=)	871.000	513.000	852.000

F.3 Results for close-ended manipulation check

```
manitab <- table(psat$q24[psat$validdata], psat$tr_video[psat$validdata])

manitab_pr <- prop.table(manitab, 2)

# c('Voting for a woman running for MP is often a waste of one's
 ↪  vote, as she
# is unlikely to win', 'Voting for a woman running for MP can
 ↪  help her win',
# 'None of the above','Refuse to answer', 'Do not know')


rownames(manitab_pr) <- c("Voting for a woman running for MP is often a
 ↪  waste of one's vote, as she is unlikely to win",
    "Voting for a woman running for MP can help her win", "None of the
     ↪  above", "Refuse to answer",
    "Do not know")

manitab_pr %>%
    kbl(caption = "Manipulation  check: proportion agreeing with statement
     ↪  by treatment",
        digits = 3, col.names = c("Control", "Progress", "Discrimination"),
         ↪  booktabs = T,
```

```
        label = "manicheck", position = "h") %>%
    add_header_above(c(`Which of the following do you think best describe
     ↪  the video?` = 1,
        Treatment = 3)) %>%
    kable_classic(full_width = T, html_font = "Cambria", font_size = 12)
     ↪  %>%
    column_spec(1, width = "24em")
```

Table F.3: Manipulation check: proportion agreeing with statement by treatment

Which of the following do you think best describe the video?	Treatment		
	Control	Progress	Discrimination
Voting for a woman running for MP is often a waste of one's vote, as she is unlikely to win	0.099	0.101	0.089
Voting for a woman running for MP can help her win	0.249	0.806	0.829
None of the above	0.609	0.064	0.043
Refuse to answer	0.002	0.004	0.002
Do not know	0.041	0.025	0.036

F.4 Effect of treatments on perceptions of the electoral prospects of female candidates

```
psat <- psat %>%
    dplyr::mutate(q19_v = ifelse(q19_v == -999 | q19_v == 999, NA,
 ↪  q19_v), q20_v = ifelse(q20_v ==
        -999 | q20_v == 999, NA, q20_v), q21_v = ifelse(q21_v == -999 |
         ↪  q21_v ==
        999, NA, q21_v), q22_v = ifelse(q22_v == -999 | q22_v == 999, NA,
         ↪  q22_v)) %>%
    dplyr::mutate(q19_v = 5 - q19_v, q20_v = 5 - q20_v, q21_v = 5 - q21_v,
 ↪  q22_v = 5 -
        q22_v)
```

```
# Table F.4: Effect of treatments on perceptions of women candidates' electoral
# viability

mech1 <- lm_robust(q19_v ~ tr_video + q5_age + female + primary_or_less + employed +
    correctMPname + close_to_a_party + turnout_last_elect + total_assets + ethnic_chewa +
    ethnic_lomwe + ethnic_yao, data = dplyr::filter(psat, validdata), clusters = q2)

mech2 <- lm_robust(q20_v ~ tr_video + q5_age + female + primary_or_less + employed +
    correctMPname + close_to_a_party + turnout_last_elect + total_assets + ethnic_chewa +
    ethnic_lomwe + ethnic_yao, data = dplyr::filter(psat, validdata), clusters = q2)

mech3 <- lm_robust(q21_v ~ tr_video + q5_age + female + primary_or_less + employed +
    correctMPname + close_to_a_party + turnout_last_elect + total_assets + ethnic_chewa +
    ethnic_lomwe + ethnic_yao, data = dplyr::filter(psat, validdata), clusters = q2)

mech4 <- lm_robust(q22_v ~ tr_video + q5_age + female + primary_or_less + employed +
    correctMPname + close_to_a_party + turnout_last_elect + total_assets + ethnic_chewa +
    ethnic_lomwe + ethnic_yao, data = dplyr::filter(psat, validdata), clusters = q2)




texreg(list(mech4, mech1, mech3, mech2), custom.model.names = c("Men make better leaders",
    "Male candidates more viable", "Women candidates more viable", "More women MPs after 2025 polls"),
    custom.header = list(Capability = 1, Viability = 2:4), booktabs = TRUE, include.ci = FALSE,
    caption = "Effect of treatments on perceptions of women candidates' electoral viability",
```

```
label = "mechtab", center = TRUE, use.packages = FALSE, scalebox = 0.7,
 ↪  custom.coef.names = c("Constant",
    "Progress", "Discrimination", "Age", "Female", "Education: primary
     ↪  or less",
    "Employed", "Name MP correctly", "Close to a party", "Turnout in
     ↪  2019", "Total assets",
    "Chewa", "Lomwe", "Yao"), omit.coef =
     ↪  "(q5_age)|(female)|(primary_or_less)|(employed)|(correctMPname)|(close_to_a_p
custom.gof.rows = list(Controls = c("Yes", "Yes", "Yes", "Yes")),
 ↪  float.pos = "h!",
caption.above = T, threeparttable = TRUE, custom.note = "\\item %star.
 ↪  \\\\\n\\item 1. \"Men make better political leaders than women.\"
 ↪  \n \\item 2. \"In parliamentary elections, it is better to vote for
 ↪  a man than a woman because the man is more likely to win.\" \n
 ↪  \\item 3. \"A woman running for parliament in my constituency is
 ↪  likely to be unsuccessful as she would face discriminations from
 ↪  parties or voters.\" \n \\item 4. \"After the 2025 elections, we
 ↪  will have more women MPs than we have today\"")
```

Table F.4: Effect of treatments on perceptions of women candidates' electoral viability

	Capability	Viability		
	Men make better leaders	Male candidates more viable	Women candidates more viable	More women MPs after 2025 polls
Constant	2.06***	2.02***	1.76***	2.74***
	(0.14)	(0.14)	(0.08)	(0.13)
Progress	−0.23***	−0.07*	−0.03	0.02
	(0.05)	(0.03)	(0.04)	(0.04)
Discrimination	−0.18**	−0.11*	−0.08	0.13*
	(0.04)	(0.05)	(0.06)	(0.04)
Controls	Yes	Yes	Yes	Yes
R^2	0.06	0.07	0.04	0.02
Adj. R^2	0.06	0.06	0.04	0.02
Num. obs.	2216	2219	2220	2117
RMSE	1.03	1.00	0.98	0.86
N Clusters	12	12	12	12

1. "Men make better political leaders than women."
2. "In parliamentary elections, it is better to vote for a man than a woman because the man is more likely to win."
3. "A woman running for parliament in my constituency is likely to be unsuccessful as she would face discriminations from parties or voters."
4. "After the 2025 elections, we will have more women MPs than we have today"

G Treatment messages

G.1 PROGRESS TREATMENT:

NGOZO: Hey, Mr. Banda! I have been waiting.

BANDA: Am sorry Ngozo, I just came back from the boma. Have you seen what has happened in our neighboring constituency? Ngozo, these are the works of their madam MP. Have you seen those beautiful bridge over there?

NGOZO: Yes, let's face it. That woman has done quite a lot in a short period of time. What's her secret?

BANDA: There is nothing secret, Ngozo. The thing is that a lot of women in power are dedicated and honest. You hardly hear of them stealing from government. They have high integrity and honor their promise to provide local infrastructure.

NGOZO: I see. That should be the reason why we don't hear them implicated in squandering Local Development Funds right?

BANDA: Sure!

BANDA [again]: And now we have our own woman MP!

NGOZO: Yes, I was very Interested to see our female MP receiving salutations from the soldiers on TV just now. I didn't know That she is the Deputy Minister of Defense.

BANDA: She is.

NGOZO: Wow! We really didn't waste our votes then.

BANDA: We did not. Women are now leading ministries like Health, Education and Gender. It is all women at the helm and there are more women in parliament than ever.

NGOZO: Ooh I see. And I also hear that Mr.Speaker Sir of
Parliament is a woman right?

BANDA: (While laughing) Yes she is.

Voiceover: LET'S VOTE FOR WOMEN!!!!-TIYENI TIVOTERE AMAI!!!!!

G.2 DISCRIMINATION TREATMENT:

MR.NGOZO IS SEATED AT THE VERANDA WAITING FOR MR. BANDA TO COME BACK FROM THE BOMA

NGOZO: Hey, Mr. Banda! I have been waiting.

BANDA: Am sorry Ngozo, I just came back from the boma. Have you seen what has happened in our neighboring constituency? Ngozo, these are the works of their madam MP. Have you seen those beautiful bridge over there?

NGOZO: Yes, let's face it. That woman has done quite a lot in a short period of time. What's her secret?

BANDA: There is nothing secret, Ngozo. The thing is that a lot of women in power are dedicated and honest. You hardly hear of them stealing from government. They have high integrity and honor their promise to provide local infrastructure.

NGOZO: I see. That should be the reason why we don't hear them implicated in squandering Local Development Funds right?

BANDA: Sure!

NGOZO: With all that she has done, it is a shame to learn what happened to our lady candidate. Have you heard that Mrs. Mambo has withdrawn from contesting as an MP in the forthcoming by-elections?

Banda: Nooo! Why?

BANDA: They say, her party doubts her chances of winning. They don't think people will vote for a woman. Instead the party has resorted to supporting that male independent candidate.

NGOZO: This is what always happens. Women have it tough in politics! Parties don't give them resources and they face harassment and prejudice. This is why there are so few of them in parliament.

BANDA: Yes, it's a shame. We have to go to Mrs. Mambo to encourage her to still contest but as an independent candidate

Voiceover: LET'S VOTE FOR WOMEN!!!!-TIYENI TIVOTERE AMAI!!!!!

G.3 IMAGES FROM VIDEOS:

```
p1 <- ggdraw() + draw_image("control.png")
```

```
## Warning: Package `magick` is required to draw images. Image not drawn.
```

```
p2 <- ggdraw() + draw_image("progress.png")
```

```
## Warning: Package `magick` is required to draw images. Image not drawn.
```

```
p3 <- ggdraw() + draw_image("discrimination.png")
```

```
## Warning: Package `magick` is required to draw images. Image not drawn.
```

```
plot_grid(p1, p3, p2, nrow = 1, labels = list("Control", "Discrimination",
 ↪  "Progress"),
    label_size = 12, label_fontface = "plain")
```

Figure G.1: Images from treatment videos