

# Getting to Know Her: Information and Gender Bias in Preferential Voting Systems\*

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## Abstract

Low-information elections have been shown to hinder the success of female candidates, especially where party-based heuristic shortcuts are absent due to intraparty competition. In this study, we evaluate whether providing voters with candidates' biographical information can increase support for female candidates with two separate survey experiments conducted in the context of Japan's 2016 and 2019 upper chamber elections, which feature an open-list proportional representation contest with optional preference voting. We also consider the effect of compulsory preference voting (i.e., excluding the option of casting a party vote), which may counteract gender-based inequalities in participation, as well as encourage voters to seek out or utilize information on (female) candidates. Our results show that providing information about candidates, as well as making preference voting compulsory, significantly increases support for female candidates. These effects are documented both with the actual candidates running in each election, and with a conjoint experiment of hypothetical candidates. (150 words)

**Keywords:** gender representation, survey experiment, conjoint analysis, preferential voting, information, Japan

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# 1 Introduction

The descriptive representation of women in democratic legislatures around the world has risen considerably over the past several decades.<sup>1</sup> This is generally considered a positive development, as increased descriptive representation of women has been shown to lead to several positive outcomes, including greater political engagement of women in the population (e.g., Karp and Banducci, 2008), an increase in substantive representation through policies that support women’s needs and interests (e.g., Bratton and Ray, 2002; Chattopadhyay and Duflo, 2004), and even lower levels of corruption (Dollar, Fisman and Gatti, 2001; Esarey and Schwindt-Bayer, 2019). At the same time, there is still considerable variation in the level and rate of change in gender representation across countries and parties.

A large body of research has focused on the institutional factors that explain this variation in women’s descriptive representation. The general pattern is that women’s representation tends to be higher under proportional representation (PR) electoral systems—which generate incentives for parties to recruit women in order to present a balanced slate of candidates—and when parties or countries adopt gender quotas with placement mandates (e.g., Rule, 1987; Matland, 1998; Krook, 2006). However, recent within-country analyses suggests that the effect of electoral rules and gender quotas on women’s representation may be weaker than previously thought (e.g., Roberts, Seawright and Cyr, 2013; Clayton, 2015), and few studies have explored the impact of electoral institutions beyond broad categories of majoritarian versus PR systems.

A separate stream in the existing literature focuses on the informational disadvantages and gender stereotypes that might bias voters and parties against female candidates (e.g., Huddy and Terkildsen, 1993; Norris and Lovenduski, 1995; McDermott, 1997; Sanbonmatsu, 2002). Some voters might expect women to pursue certain policies or behave in expected ways once in office. More generally, because women are relative newcomers to the political arena, voters might perceive them to be less qualified, on average, than their male counterparts, either because of direct gender stereotyping or biases against women, or as the result of

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<sup>1</sup>The literature on gender representation is too expansive to cover in its entirety. For useful reviews, see Lawless (2015) and Wängnerud (2009). For current comparative data on women in parliaments around the world, see the Inter-Parliamentary Union (<http://www.ipu.org>).

implicit biases and statistical discrimination (e.g., Altonji and Blank, 1999; Besley, Folke and Rickne, 2017; Folke, Rickne and Smith, 2017). Existing research has shown that voters tend to be less informed about women than men as candidates (e.g., Sanbonmatsu, 2002), and as a result, female candidates often must be *more* qualified and work harder at constituency work than their male counterparts in order to reach the same level of support from voters and parties, at least until they have a chance to prove their true quality (e.g., Anzia and Berry, 2011; Beaman et al., 2012; Folke and Rickne, 2016).

In this study, we aim to make two contributions to these existing literatures on political institutions, information, and gender representation. First, we consider the impact of providing information on candidates' backgrounds on the electoral success of female candidates. If voters are able to access information about the true qualities of female candidates, it may counteract the deleterious effects of gender stereotyping due to uncertainty about a female candidate's qualifications (assuming that women's true qualifications are at least as good as, or better than, some of their male counterparts). This kind of information about candidates is particularly important in electoral contexts like party primary elections in the United States and open-list PR elections throughout the world, where the heuristic shortcut of party label is less useful to voters in determining which candidate among many copartisans should get their vote.

Second, we examine the effect of variation in the rules *within* a class of open-list PR systems: whether preferential voting is compulsory. Variants of open-list PR are in use, or have been used in the past, in multiple democracies, including Belgium, Brazil, Finland, Italy, Japan, and Slovenia, among others, but preference voting is not always compulsory—in many systems, voters have the option to vote for a party *or* a candidate. Previous research on how preferential voting affects gender representation has produced mixed results, and is mostly based on cross-national analyses of observational data or traditional surveys (e.g., Holli and Wass, 2010; Thames and Williams, 2010; Matland and Lilliefeldt, 2014). Making preference voting compulsory might increase gender representation by erasing gender disparities in participation and engagement (e.g., Kittilson and Schwindt-Bayer, 2012; Desposato and Norrander, 2009), and since female voters are also more likely than male voters to support female candidates (McDermott, 2009), increasing the use of preference voting among

women should increase the share of votes going to female candidates.

Our research design is based on an original survey experiment administered to Japanese citizens of eligible voting age during the course of the electoral campaigns for the 2016 and 2019 House of Councillors (upper chamber) elections. Following the 2016 election, Japan ranked 163<sup>rd</sup> in gender representation among all countries surveyed by the Inter-Parliamentary Union. Just 9.3% of members of the House of Representatives (lower house) were women. In the House of Councillors, 20.7% of members were women. Women’s representation in both chambers improved somewhat following the 2017 House of Representatives elections and 2019 House of Councillors elections, rising to 10.2% and 22.6% of members, respectively. The mixed-member electoral system for the House of Councillors includes an open-list PR tier in a nationwide district in which voters may choose either a party or a candidate. In our experiment, we applied a factorial design to randomly assign respondents to receive one or both of two treatments: (1) information about candidates (biographical profiles); (2) compulsory preference voting for candidates; a control group received neither treatment. For the 2019 survey, we also included a conjoint experiment as part of the design.

Our results indicate that a significantly larger share of voters cast preference votes when more information is at their disposal, and that the share of preference votes going to female candidates is also larger in both elections. The share of preference votes going to women is higher across the board when preferential voting is compulsory, but there is no apparent additive effect of information under those conditions. This may suggest a “ceiling” to the amount of support for female candidates that could be achieved in the context of the actual set of women and men running in the election. The results of the conjoint analysis further show that voters who are exposed to information about (female) candidates and/or are forced to closely consider candidates in making a compulsory preference vote, also have significantly more positive views toward hypothetical female candidates that feature a randomized range of other attributes.

## 2 Theory and Hypotheses

Voters often make their decisions under uncertainty, and thus rely on heuristics and other shortcuts when making up their minds (e.g., Downs, 1957; Tversky and Kahneman, 1974; Popkin, 1991). Often, party label provides the most important heuristic for voters, as it typically represents an ideological position and alternative set of policies which a voter can comprehend and act upon without expending the cost and effort to seek further information. However, in elections that feature intraparty competition, such as primaries and multi-member district contests under open-list PR and similar sets of rules, the heuristic shortcut of party label is no longer as useful to voters, at least not when it comes to choosing a single candidate to support from among copartisans.<sup>2</sup>

In such contexts, voters may instead make use of heuristic cues from the attributes of the candidates themselves to make inferences about future policies or representational styles. Name recognition is one important cue in such contexts (Kam and Zechmeister, 2013), but for unfamiliar candidates, voters may fall back on other biographical cues. For example, local birth or residence may signal greater connection and attention to local concerns, incumbency may signal political experience or preparedness, level of education may signal quality or intelligence, and even a confident look or smile might signal competence for the job (e.g., Shugart, Valdini and Suominen, 2005; Horiuchi, Komatsu and Nakaya, 2012; Campbell and Cowley, 2014).

In the absence of other information, the gender of a candidate may also signal information to voters (e.g., Huddy and Terkildsen, 1993; McDermott, 1997; Sanbonmatsu, 2002). When stronger cues such as partisanship and office experience are not available, studies have found that gender is an important evaluation criteria for voters (Matson and Fine, 2006). Conversely, when more informative cues are known, gender biases that otherwise impact the behavior of voters and parties have been shown to disappear (Shair-Rosenfield and Hinojosa, 2014).

Here we spell out the logic of how our two treatment conditions—information and compulsory preference voting—should be expected to increase the share of votes for female

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<sup>2</sup>Depending on party nominations, intraparty competition may also be present under the single transferable vote (STV) and single non-transferable vote (SNTV) systems.

candidates. First, however, we lay out four assumptions that serve as the foundations for our theoretical predictions. The first assumption relates to candidates, while the remaining three relate to voters. After we present the main results of our experiment, we will explore how well these assumptions hold up as the driving mechanisms behind our findings.

Our first assumption is that, because of positive selection into politics, a woman who runs for office will be of higher quality than the average woman in the population (the same is true for male candidates). This has been shown empirically (e.g., Dal Bó et al., 2017), and is common sense given the process of political recruitment and selection. Running for office is difficult and costly, and the barriers to candidacy—sometimes for structural reasons, other times for cultural reasons—may disproportionately hinder the candidacies of women (e.g., Norris and Lovenduski, 1995; Iversen and Rosenbluth, 2010). Even for men and women of the same observable quality (in terms of education, experience, and so on), women may be less likely to enter into politics (e.g., Lawless and Fox, 2010). As a result, when women *do* decide to run, they should tend to be of higher quality than the average woman in the population, and may even be of higher quality than their average male counterparts among politicians (Besley, Folke and Rickne, 2017).

Our second assumption is that some voters will be willing to vote for a female candidate from their preferred political party, but will harbor some amount of uncertainty due to either gender stereotypes about women who run for office or a lack of familiarity with women in political office that causes them to underestimate the true quality of female candidates. Existing research suggests that many voters hold stereotypes about what types of policies might be favored by a woman running for office. Some voters might expect women to pursue certain policies or behave in expected ways once in office (most often, the stereotype is that women are more “liberal” than men), and a subset of these voters will react negatively toward female candidates on the basis of these stereotypes (Matland, 1994; Herrick and Sapieva, 1998; Beaman et al., 2009). A negative bias against women as candidates within parties, particularly by male party actors in candidate selection, has also been identified (Niven, 1998; Casas-Arce and Saiz, 2015; Folke and Rickne, 2016; Gagliarducci and Paserman, 2012). This bias may in part be due to an anticipation of gender bias in the electorate. For example, Sanbonmatsu (2006) finds that political elites in the U.S. believe there to be more uncertainty

about female candidates among voters.

Even in the absence of overt bias against women, voters evaluating female candidates may be susceptible to implicit biases and statistical discrimination. The intuition is that the political arena, like other labor markets, is a male-dominated institution that has only recently been opened up to female candidates. When a new social group enters a labor market in this way, the qualifications of individuals in that group (women) are less known compared to groups (men) who are incumbent actors on the market (e.g., Altonji and Blank, 1999; Altonji and Pierret, 2001; Goldin, 2014). As a result, women who run for office might be assumed to have qualifications similar to *all* women in the population, despite the positive selection just described. Existing research has indeed shown that voters tend to be less informed about women than men as candidates (e.g., Sanbonmatsu, 2002; Anzia and Berry, 2011), and as a result, women often must be *more* qualified and work harder at constituency work than their male counterparts in order to reach the same level of support from voters and parties, at least until they have a chance to prove their true quality (e.g., Anzia and Berry, 2011; Beaman et al., 2012; Folke and Rickne, 2016).<sup>3</sup>

Our third assumption is that the average female voter is less informed or politically knowledgeable than the average male voter. Existing comparative research suggests that there are gender disparities in voter participation and political engagement (e.g., Kittilson and Schwindt-Bayer, 2012; Desposato and Norrander, 2009), and that women tend to have lower levels of political information and knowledge (e.g., Barabas et al., 2014; Delli Carpini and Keeter, 1996). This may in part be due to women’s lower access to political resources, including time, money, organizational affiliations, and connections (e.g., Brady, Verba and Schlozman, 1995; Norris and Inglehart, 2006). As a result of this disparity in political knowledge, women may be more likely to vote for incumbents (e.g., Lizotte and Sidman, 2009), or in the case of open-list PR where preference voting is optional, may be more likely not to exercise the right to cast a candidate-level vote (opting for the more risk-averse option of casting a party vote).

Our fourth and final assumption is that the average female voter is more likely than

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<sup>3</sup>The same logic has been used to explain why women in politics are more likely to be “dynastic” (related to a current or former politician) than men (Folke, Rickne and Smith, 2017).

the average male voter to vote for female candidates. Such “gender affinity” in voting has been documented in a number of existing studies and electoral contexts (e.g., Cutler, 2002; McDermott, 2009; Giger et al., 2014). The basic intuition is that voters want to vote for candidates who are most “like them,” both for the intrinsic value in descriptive representation and for the perceived effects on substantive representation from sharing aligned preferences based on group identities. As noted earlier, such sociodemographic shortcuts may apply to many candidate attributes. The key assumption here is that this logic also applies to gender, with women thus more likely than men to support female candidates.

With these assumptions in mind, it is straightforward to understand how our two treatment conditions—information and compulsory preference voting—should be expected to affect votes for female candidates. A first hypothesis, however, is more general. If voters are given the option to choose either a candidate or a party, the share who decide to support a candidate will be higher when information about the candidates is available:

*H*<sub>1</sub>: Preferential voting in general will be higher when voters are given information about candidates.

Our remaining hypotheses relate more directly to the question of gender. If the first and second assumptions are true, then the direct provision of candidate background information on ballots, including information about women’s qualifications and other signals of quality, should reduce the impact of gender stereotyping and statistical discrimination:

*H*<sub>2</sub>: The share of preference votes for female candidates will be higher when voters are given information about candidates.

The expected effects of compulsory preference voting also follow logically from the preceding assumptions. Compulsory voting in elections has been shown to increase citizens’ political knowledge. The mechanism is that citizens who are forced to turn out will either choose to become informed, or that the process itself will indirectly impart knowledge (Sheppard, 2015). Elites should also have greater incentives to inform and appeal to eligible voters when they are required to vote. Recent research by Córdova and Rangel (2016) also finds that enforced compulsory voting at the national level has the effect of increasing the likelihood that women in particular will get information about the electoral options available.

If the third assumption about the gender gap in political engagement and knowledge is true, then women may be less likely to utilize a preference vote in an open-list PR system. If that is the case, then making preference voting compulsory should have two effects. When voters must choose a candidate and information is limited, women might rely simply on name recognition or gendered cues in candidates' names. To the extent that female voters might be more likely to support female candidates (our fourth assumption), greater participation of female voters in preference voting should help female candidates earn more votes.

When information on candidates' backgrounds is also available, compulsory preference voting should encourage voters to make use of the information. This may encourage all voters, men and women, to utilize the available information in making their decisions, and this information may counteract uncertainty about the quality of female candidates. The preceding discussion thus sets up two final hypotheses to test through our survey experiment:

$H_3$ : The share of preference votes for female candidates will be higher when voters are forced to make a candidate-level preference vote with no other information.

$H_4$ : The share of preference votes for female candidates will be highest when voters are both forced to make a candidate-level preference vote, and are provided with candidate information.

### 3 Institutional Setting

The mixed-member system for the House of Councillors combines 146 seats in districts that are geographically coterminous with the 47 prefectures, and 96 seats filled through an open-list PR (OLPR) contest in a single, nationwide contest.<sup>4</sup> Members are elected to staggered, three-year fixed terms, with half up for re-election every three years. In the prefectural tier, members are elected through the single non-transferable vote (SNTV) system with the

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<sup>4</sup>Two pairs of neighboring rural prefectures—Tottori and Shimane; Tokushima and Kochi—are each combined into single district. In the 2019 election, parties were allowed to designate candidates in the OLPR contest with “fixed” ranks (*tokutei waku*), such that any party seats would be allocated first to these candidates, in order, before being allocated to other candidates based on preference votes. In practice, only three parties (LDP, Reiwa, and Labor) used the provision for five candidates (two in LDP, two in Reiwa, one in Labor; the former four were elected). In our analysis, we still treat any votes for these candidates as expressed preference votes.

number of seats ranging from 1 to 5.<sup>5</sup> Voters cast their ballots for a single candidate, and seats are allocated in descending order of vote share. In the national tier, voters can choose to write the name of a candidate or a party. Seats are allocated first to parties, then to candidates on those parties' lists in descending order of preference votes until all party seats are filled.<sup>6</sup>

Approximately a quarter of voters opt to cast their vote in the national tier for a candidate on a party list, rather than casting a party-level vote; however, there is considerable variation in this behavior across parties.<sup>7</sup> Some parties have specific party-level strategies for utilizing preference votes for mobilization purposes. For example, the Liberal Democratic Party (LDP) often fields candidates with ties to interest groups or associations that help to mobilize an organized vote, or candidates with high levels of national name recognition, such as celebrities. In contrast, Komeito is a small but highly centralized party that draws its support primarily from members of the lay Buddhist organization Sōka Gakkai, and has been in coalition with the LDP since 1999. Komeito mobilizes its organizational base through a strategy of assigning candidates to regions of the country and instructing supporters to vote for the specific candidate assigned to their region (Smith, 2014).

Twelve parties, including the LDP and Komeito, contested the 2016 House of Councillors election.<sup>8</sup> The main opposition to the LDP in the election, the Democratic Party (DP), was formed in 2016 through a merger of the Democratic Party of Japan (DPJ) and a faction of the Japan Innovation Party (JIP). Since its original founding as the DPJ in 1996, the DP has been more active than the LDP in recruiting and nominating women as candidates (Smith, Pekkanen and Krauss, 2013). The Japanese Communist Party (JCP) is a small leftist party that has traditionally nominated the highest number of women, though its candidates rarely win. The other parties that fielded candidates in the national tier were the Social Democratic Party (SDP), People's Life Party & Friends of Yamamoto Taro (PLP),

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<sup>5</sup>For prefectures that return only one member each election, this tier is effectively equivalent to a first-past-the-post (FPTP) system in single-member districts (SMDs).

<sup>6</sup>The House of Representatives (lower house) also uses a mixed system: 295 members are elected by FPTP in SMDs; 180 members are elected through closed-list PR (CLPR) in one of eleven regional districts that overlap with the SMDs.

<sup>7</sup>See Appendix Figure A.1 for details on the use of preference votes across parties and years.

<sup>8</sup>Independent candidates may not run in the PR tier, but many do run in the prefectural tier.

Kokumin Ikari no Koe (literally, “angry voice of the people”; abbreviated as Ikari), Osaka Ishin no Kai (composed primarily of JIP members who did not join the new DP; abbreviated as Ishin), Happiness Realization Party (Kofuku), Shiji Seito Nashi (literally, “I support no party”—a fringe party cleverly named to attract disaffected voters; abbreviated as Nashi), Party for Japanese Kokoro (a far-right conservative party; *kokoro* means “heart”; abbreviated as Kokoro), and New Renaissance Party (Kaikaku).

The LDP won the most seats (55) in the 2016 election, followed by the DP (32), Komeito (14), Osaka Ishin (7) and the JCP (6). The remaining seven seats went to small parties and independents. Across all parties, 96 women were nominated (36 of whom ran in the national tier), but only 28 were elected (including 11 in the national tier).<sup>9</sup>

The 2019 election featured thirteen parties. The governing parties were still the LDP and Komeito, and these parties were challenged by DP successor parties, the Constitutional Democratic Party (CDP) and Democratic Party for the People (DPFP); as well as the JCP, Ishin, SDP, Kofuku, and five new parties: Reiwa Shinsengumi (Reiwa), the Party for Protecting Citizens from NHK (NHK), the Liberation from Labor Labor Party (Labor), the Olive Tree Party (Olive), and the Association for Considering Euthanasia (Anraku). The LDP again won the most seats (57), followed by the CDP (17), Komeito (14), Ishin (10), JCP (7), DPFP (6), Reiwa (2), SDP (1), NHK (1), and independents (9).

## 4 Survey Design

We use an online survey experiment to test for the relationship between support for female candidates and two separate voting conditions: exposure to candidate background information, and compulsory preference voting. The first survey of 1,717 respondents was conducted between July 2-9, 2016, the last eight days of the campaign before actual voting took place on July 10, 2016. The second survey of 2,018 respondents was conducted between July 8-20, 2019, prior to the vote on July 21, 2019. Respondents in both surveys were recruited through Qualtrics Panels.

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<sup>9</sup>The complete breakdown of candidacies and winners by party and gender for the 2016 election (2019 data to be updated) is given in Appendix Table A.1.

In both surveys, respondents were first asked to provide their gender, age, educational background, household income level, and prefecture of residence. They were then randomly assigned into one of four groups that differed along the two treatment conditions and asked to make a vote choice from among the candidates given. Following the experimental exercises, all respondents were presented with a series of questions related to their ideological and political leanings, voting history, past political behavior, partisanship, and general preferences for different candidate backgrounds.<sup>10</sup>

The survey ballots were designed to approximate those that would be displayed to voters in actual polling booths during the election. In the actual voting booth, voters would cast each of their two votes (prefectural and national) by physically writing down a candidate or party name on a blank paper slip, while referencing a list of the parties and candidates running that is pasted on the wall in front of them in the booth. In our survey, we replicated the list of candidates, using the same configuration of parties and candidate names that would appear in the voting booth, taking special care to preserve the official name ordering which the Ministry of Internal Affairs and Communications determines by lottery.

For the prefectural tier race, respondents were shown candidate lists specific to the reported prefecture of residence. Figure 1 shows the prefectural tier candidate list for Miyagi Prefecture as an example. Rural areas such as Miyagi typically featured a 3-candidate race, while more populous districts such as Tokyo saw as many as 31 candidates competing. We asked respondents to first manually type their vote choice into text boxes for each race; on the subsequent screen, we asked them to confirm their choice with clickable options for each candidate.

For the national tier race, as in the actual election, all respondents were presented with the same reference list of parties and candidates, regardless of their prefecture of residence. Figure 2 shows a replication of the national tier list for each of the twelve parties. Arrows indicate female candidates. The actual ballot shown to respondents in the survey did not

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<sup>10</sup>Our sample is not a probability sample, meaning that each eligible voter in Japan did not have equal chances of participating in the survey, and therefore it cannot strictly be considered as nationally representative. However, recruitment was designed to match electorate population demographics in terms of age, gender, prefecture of residence, income, and education via stratified sampling of the Qualtrics Panels respondent pool. The Appendix provides descriptive statistics on the demographics of the respondents, as well as covariate balance across treatment groups.

参議院選挙区選出議員選挙候補者	
党派名	氏名
自由民主党	くまがい <sup>ゆたか</sup> 大
民進党	さくらい <sup>みつる</sup> 桜井 充
幸福実現党	ゆい <sup>てつし</sup> 油井 てつし

Figure 1: Sample of a prefectural tier ballot.

*Note: Sample shown is for Miyagi prefecture (2016 election). The candidate's party is given in the left column; the candidate's name (with furigana guide to reading above characters) is in the right column. All three candidates in this race were men.*

indicate female candidates, and was stacked as a single, continuous ballot with three columns. As with the prefectural tier races, respondents were asked to enter a vote choice and then validate this choice on the subsequent screen.

While our research questions are designed to be tested only by results from the national tier race, the inclusion of the prefectural tier race into the survey serves two purposes. First, it enhances the realism of the survey and increases the probability that respondents behave as they would in the actual voting booth. Our attention to ballot ordering and the method of casting votes (writing in names) also serves this aim. The practice of “split-ticket voting” in Japan also makes the inclusion of both ballots important. Japan’s two-tiered election allows voters to express support for different partisan options in the same legislative chamber.<sup>11</sup> Thus, if we only included one tier’s ballot in the survey, a non-trivial proportion of potential ticket-splitters among our respondent pool may have been forced to evaluate their choice options differently than they would in the actual voting booth.

The second purpose of including the prefectural race is that it allows us to further assess the representativeness of our sample to the electorate at large. Because the survey’s party and candidate lists were matched with those used in the real election, we can compare our

<sup>11</sup>While scholars argue that their reasons for doing so vary (Moser and Scheiner, 2009), previous surveys suggest that the percentage of voters “splitting their ticket” in Japan may reach up to 25% (CSES Module 1 <http://www.cses.org/datacenter/module1/module1.htm>).



survey results to the actual election results and get a sense of how similar the party and candidate support rates were across the two environments. Having both prefectural and national tier races to draw from in this comparison strengthens these assessments.<sup>12</sup>

## 4.1 Treatment Conditions

Respondents were randomly assigned into four groups prior to the vote choice exercises. The groups differed along two treatment conditions as summarized in Figure 3: ( $T_1$ ) the provision or absence of candidate background information, and ( $T_2$ ) the ability or inability to cast a party-level vote in the national tier.

For Group 1 (N=452 in 2016; 522 in 2019), conditions were identical to those found in voting booths during the election. Respondents were presented only with lists of the names of the parties and candidates running, with no additional information available. Unless the candidate was already known to the respondent, this means that only party and gender could serve as informational cues, as gender is easy to distinguish in most Japanese names. For the national tier race, respondents were free to write down either a party name or cast a preference vote, specifying a single candidate from one of the party lists.

Group 2 (N=434 in 2016; 501 in 2019) respondents were provided with background information about the candidates running. For the prefectural tier race, they were given profiles of each candidate running in their prefecture of residence. These profiles were generated from the same kinds of information provided both online and in print by the national Japanese newspapers *Asahi Shimbun* and *Yomiuri Shimbun* during the election campaign period. Each profile included the candidate’s picture, incumbency status, previous office experience (if any), age, educational background, and occupational background.

After viewing these profiles and casting their prefectural tier votes, Group 2 respondents were then told they would be casting a second vote for the national tier race but would also be shown candidate profiles from among the party lists that were competing in that

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<sup>12</sup>Thirteen of forty-five prefectural races in 2016 included no female candidate. These races applied to roughly 13% of respondents in the survey. One concern might be that the gender composition of the prefectural race might have “primed” respondents to consider or disregard gender when evaluating the national tier candidates. However, our main results appear to be unaffected by whether or not the prefectural race featured a female candidate. See Appendix Figure A.3. Analogous results for 2019 still need to be updated.

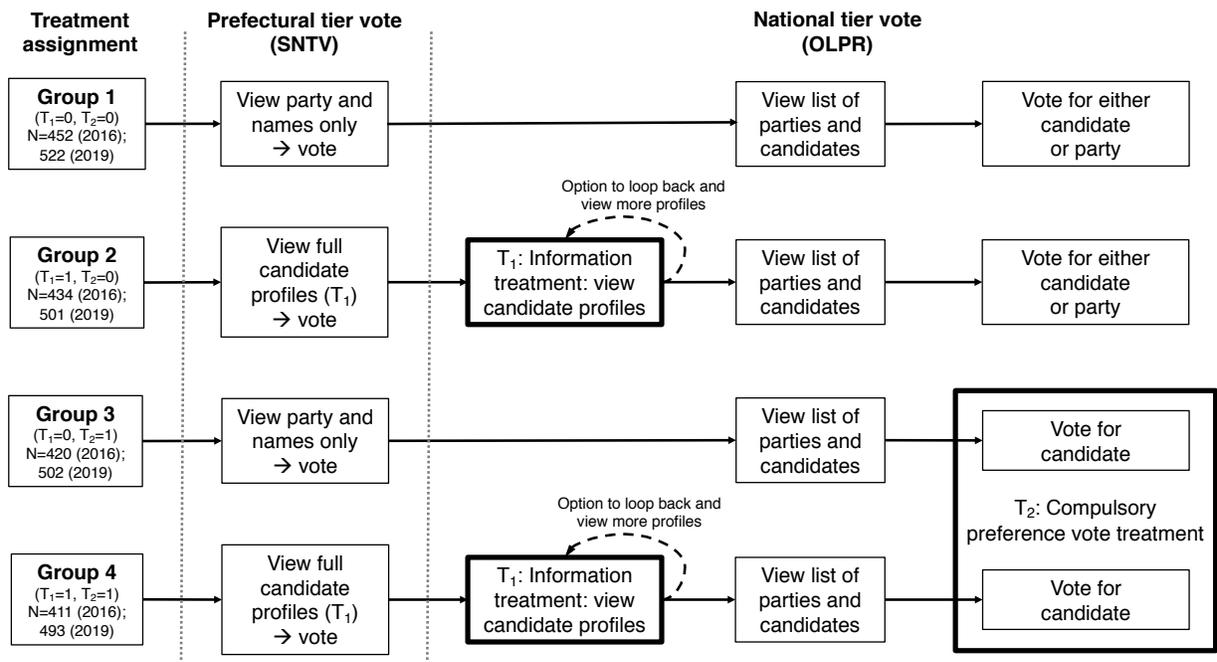


Figure 3: Experimental design: information ( $T_1$ ) and compulsory preference voting ( $T_2$ ).

Note: Group 1 received no treatment. Group 2 and Group 4 received Treatment 1, the option to view biographical profiles of candidates for any party. Group 3 and Group 4 received Treatment 2, compulsory use of preference vote for a candidate (no party vote). All groups first voted on prefectural district candidates; Group 2 and Group 4 were also shown candidate profiles for prefectural candidates.

race. Because there were 164 candidates in this race running on twelve different party lists, respondents were only required to view profiles from as many party lists as they deemed relevant to their own vote choice.<sup>13</sup>



Figure 4: Sample of profiles shown to respondents in the information treatment groups.  
*Note: Figure displays profiles of 3 of the 25 candidates running on the LDP party list in the national tier in the 2016 election. These profiles were made available for respondents in treatment groups 2 and 4 to view.*

The national tier party list candidate profiles were identical in format to those displayed for the prefectural race, but included information about candidates' local upbringing (home-town prefecture) since this is a characteristic more likely to distinguish candidates running at the national level. Existing research suggests that local ties can indeed be an important voting cue in open-list PR elections (Shugart, Valdini and Suominen, 2005; Nemoto and Shugart, 2013; Jankowski, 2016). Figure 4 displays an example of these candidate profiles (from the 2016 election) as they were shown to respondents in Japanese, with an English

<sup>13</sup>Strictly speaking, this treatment might be considered an intention-to-treat (ITT), since each respondent was required to look at the profiles of at least one party, but was not required to access all information for all parties.

translation to the right (translation not shown to respondents). As in Group 1, respondents were free to cast either a party vote or candidate preference vote in the national tier race.

Groups 3 and 4 incorporated compulsory preference voting as a treatment. Group 3 (N=420 in 2016; 502 in 2019) respondents, as in Group 1, were not provided with candidate background information prior to their vote choice. However, unlike Group 1, the nature of that choice for the national tier race was constrained so that respondents were forced to specify a preferred candidate from one of the party lists. Group 4 (N=411 in 2016; 493 in 2019) respondents were also forced to cast a preference vote on the national tier ballot, but as in Group 2, were provided access to candidate background information.<sup>14</sup>

## 5 Results

We test Hypothesis 1 by comparing the rates of respondent preference voting in Group 1, where no candidate information was provided, to Group 2, where candidate profiles were displayed to respondents prior to making a vote choice. Figure 5 provides a visualization of the results across both election years. In 2016, 24.1% of Group 1 respondents chose to cast preference votes, which very closely mirrors the rate of preference votes actually cast in the elections, which was 24.5%. Preference voting among Group 2 respondents, however, was 11 percentage points higher at 35%. The difference is significant at  $p < 0.01$ . Similar patterns hold with the 2019 data and when pooling data from both surveys.

These results comport with numerous comparative studies of voting behavior under conditions of candidates competing on the same party label. For example, in explaining why many general election voters in the United States fail to cast ballots in primary elections, Gerber et al. (2017) find that the cost of gathering candidate information plays a significant role. A recent experiment on German voters in open-list state-level elections finds significant boosts in turnout and voter satisfaction when information about candidates—particularly their occupational backgrounds—is provided (Sajons, 2016). Swedish local elections also use open-list preferential voting rules. Here, even though overall turnout is high (typically 90%),

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<sup>14</sup>The decrease in sample size across groups suggests some attrition of respondents who were randomly assigned to the more complex treatment conditions.

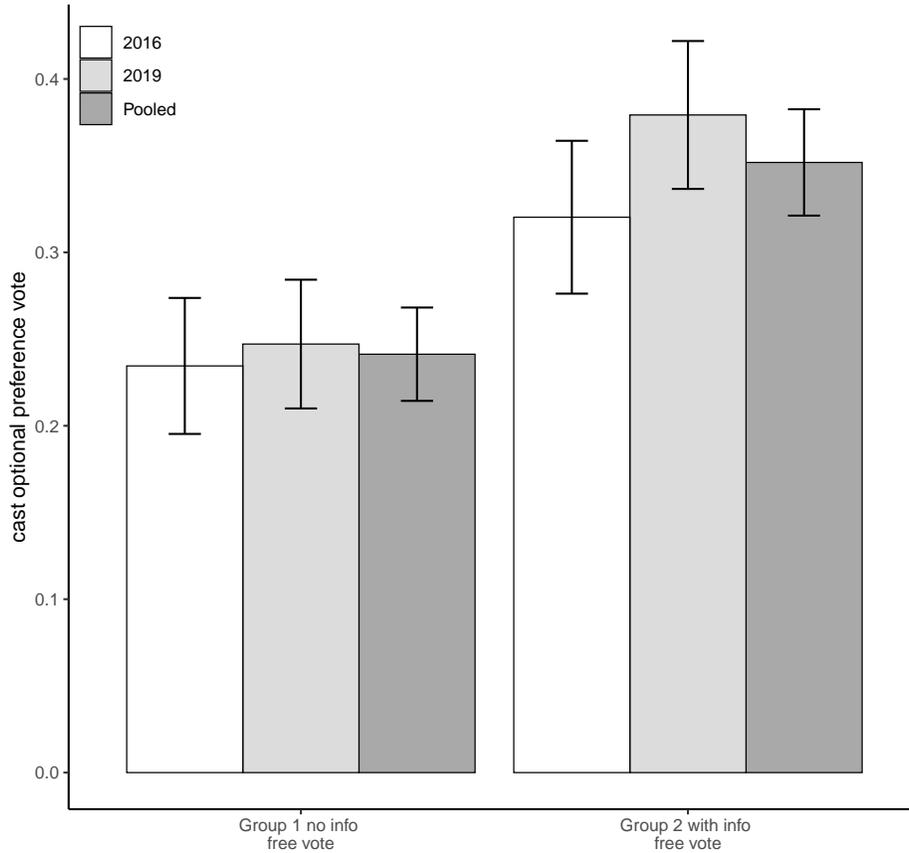


Figure 5: Proportion of preference voters by group, with 95% confidence intervals.  
*Note: white and light gray bars represent the rates of preference voting across groups 1 and 2 in each election year. Dark gray bars represent rates in the aggregated sample of both surveys. The pooled sample size for each treatment group is as follows: Group 1  $N=974$ , Group 2  $N=935$ .*

only a third of these voters tend to cast preference votes, and surveys indicate that their primary reason for failing to do so is the lack of information given about candidates (Folke and Rickne, 2016).

In the national tier of Japan’s upper house, rates of preference voting are quite low compared to other countries that use the same system in national-level elections. Brazilian preference voters usually make up 80–90% of the total voting electorate (Nicolau, 2004). In Japan, however, the average rate has been less than 30% since the adoption of open-list rules in 2001, and has been declining (Figure A.1). Given that overall turnout for the past six elections averaged 56%, the proportion of the electorate determining which candidates get elected on the party lists is remarkably small. In the 2016 election, winning candidacies were

decided by only 14% of eligible Japanese voters.

A post-treatment question in our 2016 survey queried respondents about their past behavior in the 2013 House of Councillors elections. We were interested in what led some voters to turn out for the election but to abstain from casting preference votes. Similarly, for those who did cast preference votes, we wanted to know what considerations factored into those decisions. Among those who did not cast a preference vote, 49.7% reported that they did not have enough information; 36.5% reported that they were indifferent between the candidates (the remaining 13.8% gave “other” as the reason). Among those who did cast a preference vote, 46.7% reported that their choice was based on the candidate’s background; 33.1% based their choice on the recommendation of an organization; and 8.6% based on the recommendation of a friend or family member (11.7% reported “other” as a reason). Although these responses may be affected by numerous considerations and memory, the distribution of responses suggests that having or lacking candidate information may be a primary driver for both of these groups of voters.

Next, we turn to our gender-related hypotheses. Hypotheses 2 through 4 are that female candidates in particular will benefit from the implementation of our treatment conditions. Figure 6 shows aggregate support rates for female candidates across each of the four treatment groups in both election years. Our results comparing Group 1 vote choice to outcomes in all other treatment groups strongly suggest that both the provision of candidate information and the imposition of a compulsory preference vote are associated with increased support for women on party lists.

Comparing Groups 1 and 2, we find that the provision of candidate information prior to vote choice boosted overall vote share for female candidates in 2016 from 5.5% to 14.5%. This 9-percentage-point difference is significant at  $p < 0.0001$ .<sup>15</sup> Comparing preference votes for women in Group 1 to those in Group 3—in both cases where no candidate background information was provided—we find that imposing a compulsory preference vote, as in the real-world open-list system in Finland, boosts female candidates’ aggregate vote share from

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<sup>15</sup>Note that the denominator in each group is all votes cast, regardless of whether the vote was for a party or a candidate. For Groups 1 and 2, if we restrict the denominator to preference voters only, support rates for female candidates are 23.5% and 45.3% respectively. The 21.8% difference between these two groups is significant at  $p < 0.001$ .

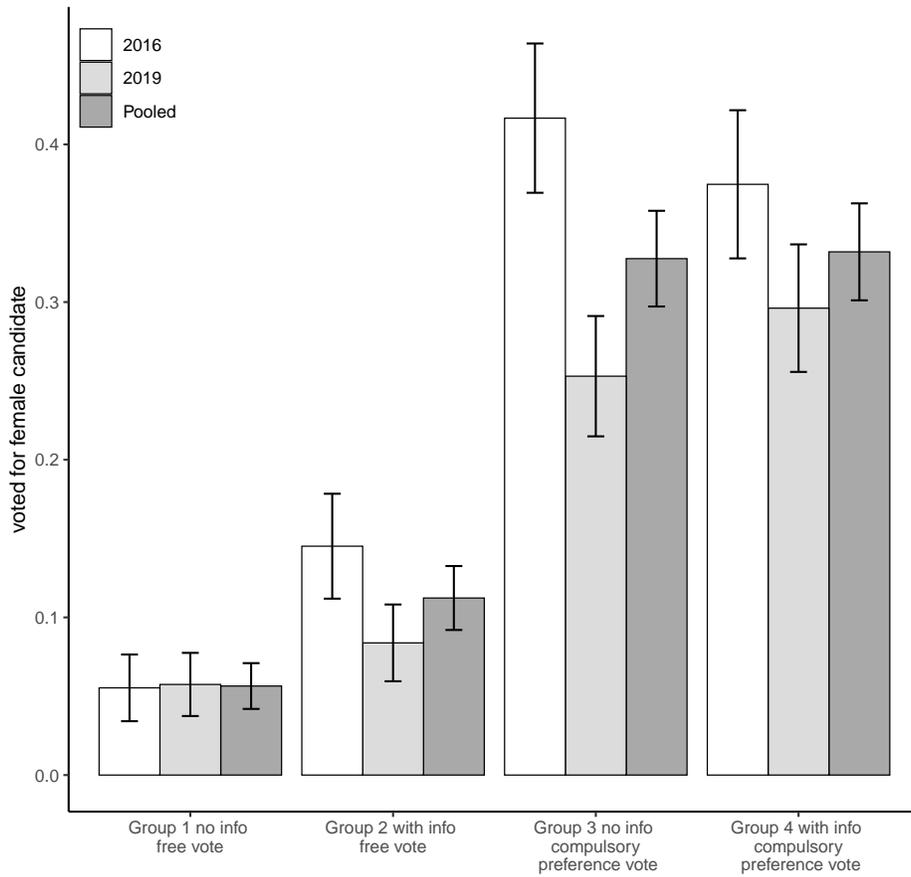


Figure 6: Share of female candidate support, by treatment group in each survey.

*Note: white and light gray bars represent the support rates of female candidates across all treatment groups in each election year. Dark gray bars represent support rates in the aggregated sample of both surveys. The pooled sample size for each treatment group is as follows: Group 1  $N=974$ , Group 2  $N=935$ , Group 3  $N=922$ , Group 4  $N=904$ . All group means are bounded by 95% confidence intervals.*

5.5% to 41.6%. This is a remarkable 36-percentage-point difference from simply making it mandatory to vote for a candidate rather than a party. The 2019 results are similar, but less dramatic.

We do not find any evidence that the combination of the two treatment conditions has an additive effect (the estimated effect for Group 4 in 2016 is actually smaller than that of Group 3, although the difference is not statistically significant). We suspect that one reason for this outcome may be that there is a ceiling to support for the specific female candidates on the ballot in the actual election (and in our experiment). There might be an additive effect, for example, if there were a greater number and diversity of female candidates running. This is a possibility for future research to explore.

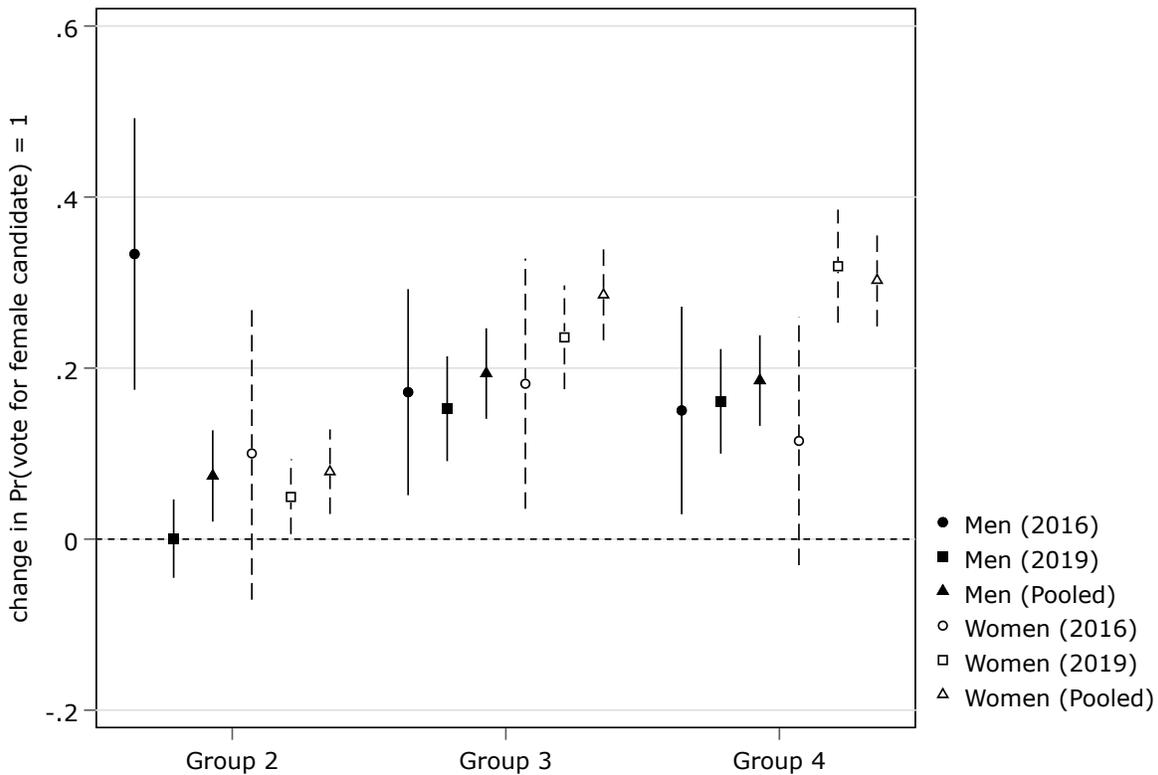


Figure 7: Estimated treatment effect, by respondent gender.

*Note: The dependent variable is a binary variable of voting for a female candidate. The figure shows the point estimates and 95% confidence intervals from regressing the DV on dummies for each treatment group, with Group 1 used as the baseline, and no other covariates or controls included.*

Figure 7 plots the estimated effects of each treatment condition by the gender of the

respondent. The dependent variable is a binary variable of voting for a female candidate, with Group 1 used as the baseline (control). Relative to Group 1, providing information (Group 2) appears to have a larger effect on male voters than female voters in 2016, but not in 2019. Under the compulsory preference voting conditions (Group 3 and Group 4), the pooled sample effect is larger for women (seemingly due to the 2019 sample).

## 6 Conjoint Analysis

In the 2019 survey, we followed the main experiment with a set of conjoint exercises asking respondents to evaluate hypothetical politicians. Several recent studies have used conjoint analysis to evaluate voters' preferences for the attributes and policy positions of politicians (e.g. Hainmueller, Hopkins and Yamamoto, 2014; Carnes and Lupu, 2016; Horiuchi, Smith and Yamamoto, 2018). Conjoint analysis involves presenting respondents with two profiles of hypothetical politicians that feature a fully-randomized set of personal "attributes" (e.g., gender) each with one of several randomized "levels" (e.g., male or female). Respondents are then asked to choose the hypothetical politician they most prefer. As Hainmueller, Hopkins and Yamamoto (2014) explain in detail, this design allows researchers to estimate the average marginal component effect (AMCE) of each attribute level.

Horiuchi, Smith and Yamamoto (2018) conduct a conjoint analysis of Japanese voters' preferences for common attributes among candidates and elected MPs across the two chambers of the Diet. We build on their design with a few modifications to the attributes and levels. Respondents completed ten pairwise comparisons of hypothetical politicians, each time being asked to indicate "Which of the following two persons do you think is more desirable as a politician?" Each profile featured seven attributes (Incumbency, Gender, Age, Education, Hometown, Prior Occupation, and Prior Political Experience), and the order of these attributes was randomized for each respondent (but fixed across exercises) to prevent order effects. Each attribute featured a randomly assigned level (as shown in Figure 8). The randomization of attributes and levels allows us to make inferences about which of these attributes are more relevant in respondents' choice of hypothetical politicians, as well as which specific levels on those attributes are favored or disfavored.

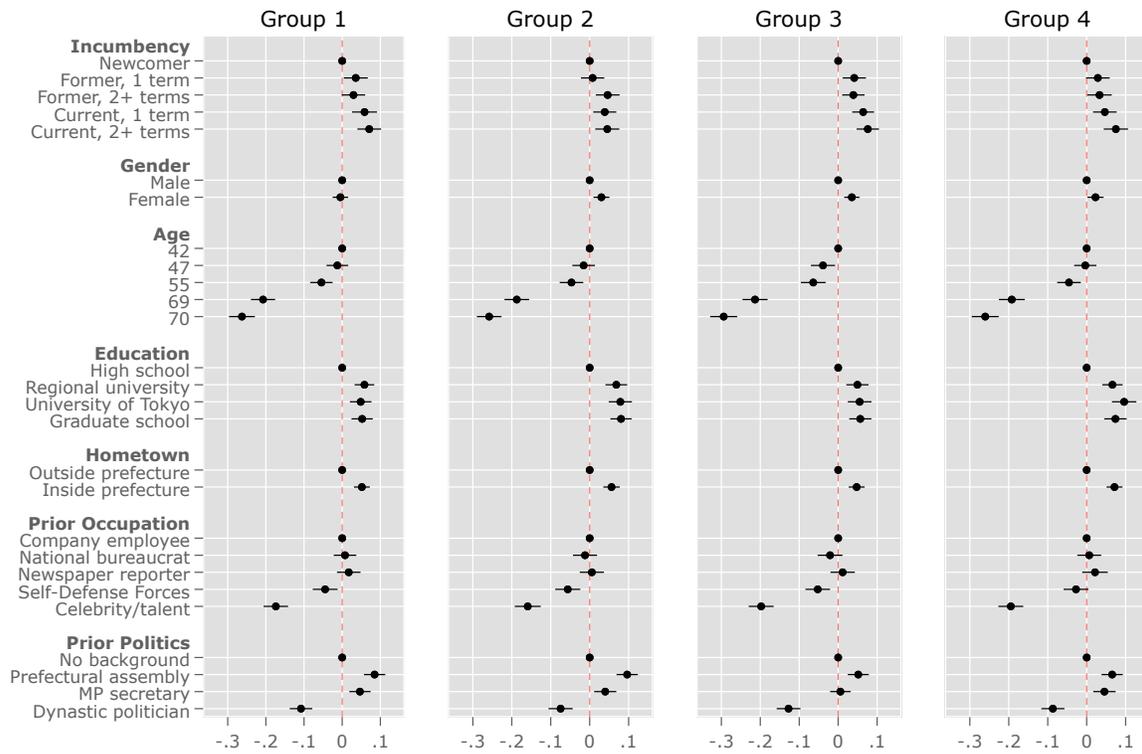


Figure 8: Average marginal component effects of candidate attributes, by treatment group. *Note: Each circle in the plot represents the estimated average marginal component effect (AMCE) of an attribute level on a respondent's probability of choosing a hypothetical politician containing that attribute level, compared against a politician with the baseline level for the same attribute. The horizontal bars represent 95% confidence intervals robust to clustering at the respondent level.*

The plots in Figure 8 display the AMCEs from the 2019 conjoint experiment, by treatment group. For respondents who participated in Group 1 (no information, free vote), gender has an AMCE of zero. For respondents in all other treatment groups, however, hypothetical politicians who are female are significantly more likely to be chosen than hypothetical male politicians. These results suggest that the treatments of receiving information and/or being forced to cast a preference vote (and thus thinking more carefully about the candidates available) had a positive effect on respondents' subsequent evaluations of hypothetical politicians, with gender randomized and bundled with a host of other common attributes. Combined with our main results based on reported vote choice for the actual male and female candidates running in the 2016 and 2019 elections, these conjoint experiment results provide further evidence of a significant effect of information and compulsory preference voting on voters' support for female candidates.

## 7 Exploring the Causal Pathways

We argue that the substantively large and statistically significant effects in our main results operate through two causal pathways. First, the provision of information allows some voters to incorporate cues of candidate quality into their evaluations, and in so doing, to overcome latent gender biases that would otherwise hinder female candidates. Second, gender imbalances in the rates of preference voting, combined with a greater tendency for female voters to prefer female candidates, leads to greater support for the latter when more women enter the pool of preference voters. In this section, we elaborate on these two pathways and evaluate them with subgroup analyses of our survey data.

### 7.1 Information Helps Female Candidates with Experience

The information mechanism relies on two assumptions. The first of these is that perceptions of candidate quality—particularly as interpreted through the cue of political experience—are an important component of vote choice when voters consider options among candidates from the same party. Comparative studies consistently find a higher premium on candidate quality when the cue of party label is insufficient for making a vote choice (Lim and Sny-

der, 2015). Some studies even suggest that intraparty competition through such means as primary elections or open-list preference systems are a necessary way of ensuring that party nominations and organizational promotions go to quality candidates (Hirano and Snyder, 2014; Folke and Rickne, 2016).

The second assumption is that gender stereotypes in Japan follow similar patterns to those found in the United States, whereby perceptions of diminished competence in “male” issue arenas, such as foreign policy and economic management, can hinder female candidates when there is no countervailing information or evidence of experience (Kittilson and Fridkin, 2008; Ono and Yamada, 2018). When asked explicitly about their opinions on the current levels of women’s representation in the Diet, most respondents acknowledge a need for more female legislators: 48.6% in 2016 and 54.26% in 2019 said it should be increased, compared to just 5.9% (6.3%) who said it should be decreased, and 19.6% (17.4%) who said it is “about right.”<sup>16</sup>

However, previous work on voter preferences for different candidate attributes suggests that gender does not play a large role relative to other characteristics, such as experience in office (Horiuchi, Smith and Yamamoto, 2018). Our 2019 conjoint experiment results also suggest that experience, education, and age weigh more heavily in voters’ evaluations of candidates. When we asked survey respondents directly about which candidate profile elements, if any, they found most useful for their vote choice, the attributes of occupational background, incumbency status, age, and education far outshined those of gender, local upbringing, and appearance (Figure 9, based on 2016 data).

We interpret this to mean that while most Japanese voters do appear to consciously care about women’s representation, they place a higher premium on other, more informative and direct, cues of candidate quality when making preference voting decisions. Furthermore, although subconscious gender stereotypes may negatively impact perceptions of female candidate quality, when these more informative cues are made available many voters can overcome such biases and explicitly seek candidates that are both female *and* politically experienced. We expect these information dynamics to be at play not only in Group 2, where we plainly provide respondents with candidates’ background profiles, but also in Group 4,

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<sup>16</sup>The remaining 26% (22%) said they “don’t know.”

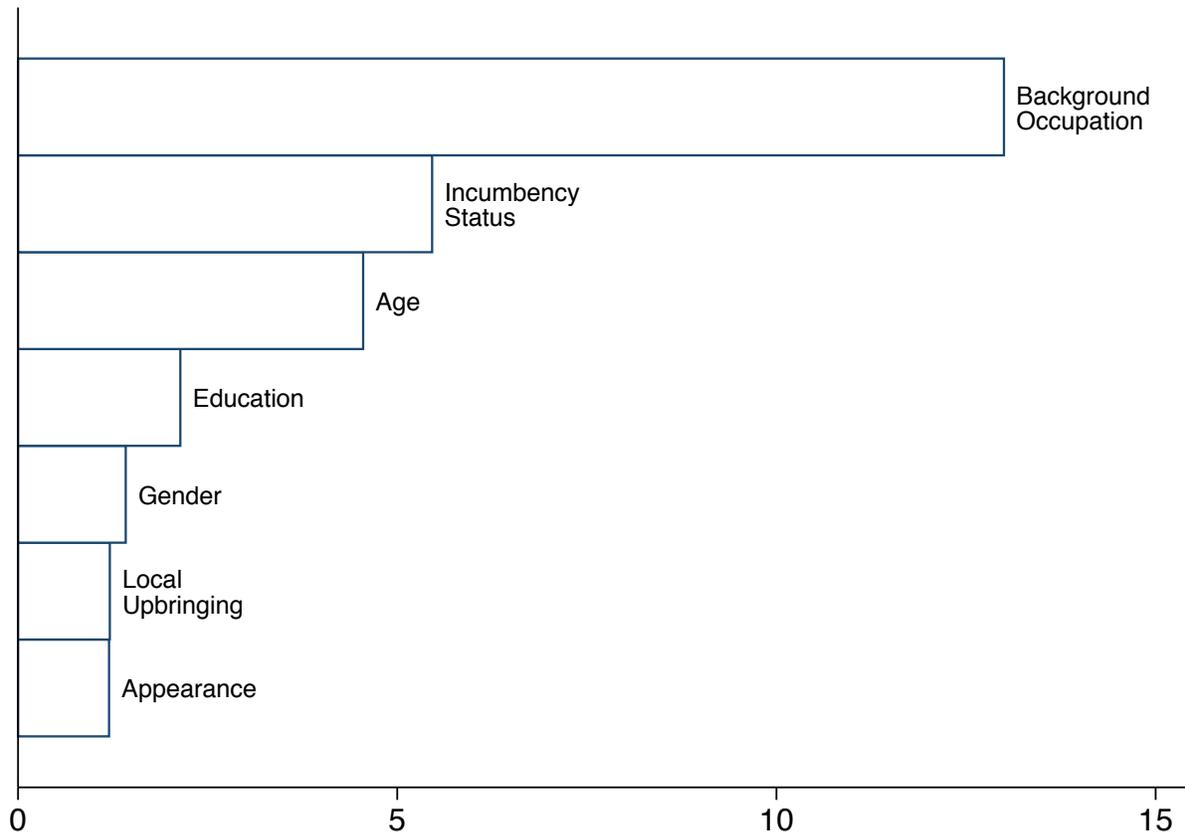


Figure 9: Relative relevance of different profile attributes to candidate choice.

*Note: For each profile element, bars represent the ratio of respondents who reported finding the element “very useful” to those who reported finding it “totally useless” for their vote choice. For every 13 respondents who found candidate background information “very useful” there was one who found it “useless.” For elements such as local upbringing and appearance on the other hand, the ratio was nearly one-to-one. Only respondents in Groups 2 and 4 received this survey question. Based on 2016 data, N = 845.*

where respondents were forced to make a candidate choice. This is because the imposition of a forced preference vote should encourage respondents to seek and utilize candidate information (Córdova and Rangel, 2016).

To explore this interpretation, we conduct an analysis of individual candidates' attributes and the relative aggregate performance of candidates across different treatment groups (with the 2016 data). We first subtract each candidate's individual share of preference votes within their own party list in Group 4, from the share of party list preference votes that they received in Group 1. Recall that Group 4 respondents were forced to cast a preference vote, whereas doing so was optional for Group 1 respondents. We then regress this difference on a number of candidate characteristics, while controlling for party affiliation, to estimate the effect that these attributes have on changes in voter support when both information and compulsory voting are present.

It is important to control for party for several reasons. First, each party may have specific strategies for utilizing preference votes. Second, there is some experimental evidence to suggest that preference voting may be correlated with the degree of internal division within a given party (Blumenau et al., 2016). Third, the relationship between gender and preference voting depends on the composition of the list. On one extreme, gender means very little when a list contains no women (like that of Komeito); on the other extreme, too many women on a list can potentially hamper the electoral success of women by spreading any potential "gender vote" too thin across female copartisans (Górecki and Kukołowicz, 2014). Particularly in the absence of additional information, respondents' use of gender as an informational cue is likely to depend on the number of choice options.

Owing to the information mechanism we have outlined above, we expect that the combination of having political experience and being female will be positively associated with changes in support under conditions of compulsory preference voting and full information. Indeed, we find that the interaction of these two attributes leads to a very large and statistically significant increase in party list vote share (18% increase,  $p < 0.001$ ). Table 1 summarizes the results of these OLS regression analyses.<sup>17</sup>

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<sup>17</sup>We run these same analyses with party list vote share comparisons of candidates' Group 2 vs Group 1 aggregate support rates and find null results. We suspect that the discrepancy arises from insufficient observations in this comparison to tease out the effects of interaction terms. Preference votes in Groups

Table 1: OLS regressions of support differences on candidate attribute predictor variables.

	(1)	(2)
	Support Difference	Support Difference
Female	0.0424 (1.72)	-0.0113 (-0.41)
Experience	0.0336 (1.44)	-0.000114 (-0.00)
Age	0.000590 (0.59)	0.000501 (0.53)
University of Tokyo	0.0729 (1.78)	0.0625 (1.58)
Female*Experience		0.180*** (3.67)
Observations	164	164

*t* statistics in parentheses.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

*Note: Unit of analysis is candidate, not survey respondent. Dependent variable is the difference in aggregate levels of individual candidate party list vote shares on Groups 1 and 4. Positive coefficients represent the same candidates' boost in support when being evaluated by respondents in Group 4 rather than Group 1. Both models include party affiliation fixed effects, which are omitted from the table for space reasons.*

## 7.2 Gender Disparities in the Use of Preference Voting

We also argue that compulsory voting leads to greater support for female candidates through a separate causal pathway—namely by increasing the share of preference voters who are women. This benefits female candidates because Japanese women exhibit less of a baseline gender bias (Ono and Yamada, 2018), and because they tend to care more about imbalances in gender representation. Besides providing incentives to gather candidate information, the imposition of a compulsory preference vote has a dramatic effect on the share of the electorate that determines candidate rankings on party lists. Recall that in the 2016 election, national-tier winning candidacies were determined by a small pool of voters who accounted for only 14% of the total Japanese electorate. It is unlikely that this group of preference voters is representative of (in either a descriptive or substantive sense) the other 59 million citizens who chose to cast only party votes.<sup>18</sup>

But in addition to differences in preference voting across supporters of different parties, it is likely that there are systematic differences between preference voters and non-preference voters stemming from individual behavioral tendencies. Comparative studies, for example, find that women participate in political activities less than men in most countries (Paxton and Hughes, 2016). Recent work has shown that, because of such differences, compulsory voting can have a positive effect on turnout among women (Córdova and Rangel, 2016). A 2014 survey tracking the behavior of Japanese voters in the previous 2013 upper house election found significant differences between men and women in their individually reported rates of preference voting (Reeves, 2015). Model (1) in Table 2 reports results from an analysis of this survey data. After controlling for ideology, age, education, and partisanship, it was found that women were less likely to cast preference votes in 2016.

In Group 1 of our 2016 survey, where voting conditions were modeled after the actual election (i.e., no candidate information with a free vote), the proportion of women casting preference votes was 18.9%, compared to 26.2% for men. Similar to the analysis using the 2014 survey, we estimate the impact of gender on preference voting in our 2016 survey of

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1 and 2 were distributed among only 56 and 51 candidates respectively, whereas for Group 4 they were distributed among 90 candidates.

<sup>18</sup>As illustrated in Appendix Figure A.1, we already know that there are differences in the rates of preference voting across parties. In some cases these differences are quite stark.

Table 2: Logistic regressions of preference voting on respondent characteristics.

	(1) 2014 Survey Preference Vote	(2) 2016 Survey Preference Vote
Female	-0.857** (-2.79)	-0.488* (-1.79)
Centrist	-1.178*** (-3.59)	-0.318 (-0.99)
Liberal	-0.343 (-1.04)	-0.132 (-0.44)
Satisfaction w/ system		0.334** (2.05)
Political engagement:		
<i>vote</i>		-0.0323 (-0.30)
<i>think</i>		0.0660 (0.42)
<i>discuss</i>		0.0268 (0.17)
<i>N</i>	1569	440

*t* statistics in parentheses.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.001$ .

*Note: The dependent variables are dichotomous measures capturing, in Model 1, whether or not respondents from the 2014 survey reported having cast preference votes in the 2013 election, and, in Model 2, whether or not respondents from Group 1 of our 2016 survey actually did cast preference votes in the survey. Further information about the 2014 survey can be found in Reeves (2015). Both models include fixed effects for party affiliation, and controls for levels of education. Model 2 also includes controls for levels of household income. These are omitted from the table for space reasons.*

Group 1 respondents using logistic regression. In addition to ideology, age, education, and partisanship, we also include controls for income, level of engagement with politics, and satisfaction with the functioning of Japanese democracy—all of which have been identified as contributing factors to voter participation. We find here, too, that preference voting is negatively associated (albeit with less statistical significance,  $p = 0.07$ ) with being female. Model (2) in Table 2 summarizes these results for the key variables of interest.

If compulsory voting rules do in fact change the pool of preference voters to include more women, it does not necessarily follow that these added women will support female candidates. However recent literature suggests that Japanese women do exhibit less of a baseline gender bias (Ono and Yamada, 2018), which if true should, *ceteris paribus*, redound to the benefit of female candidates when there are more women among preference voters. In our survey, we also find evidence that Japanese women are more concerned than men about gender imbalances in representation. The fact that nearly half of respondents believed that gender presentation should be increased in Japan suggests that increasing female representation in politics is a broadly supported societal aim. However, when we look at respondents who reported strong opinions of change on this issue (i.e., only those who expressed that women’s representation “should increase” or “should decrease,” excluding those who answered that the current levels are “just right” or that they are “not sure”), clear differences emerge. Controlling for partisanship, ideology, education, income, age, and levels of political activism, women were significantly more likely ( $p < 0.01$ ) to favor an increase in female representation.<sup>19</sup>

Of course, even if female voters express different preferences about women’s representation in general and harbor less of a gender bias in the abstract, the validity of our proposed mechanism ultimately hinges on whether or not these general preference differences actually translate into differences in vote choice over real candidate options. Analyzing vote choice under conditions of compulsory preference voting, we test the relationship between respondent gender and female candidate support in two ways: first while controlling for respondent characteristics, and second while controlling for candidate characteristics.

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<sup>19</sup>These are results from a logistic regression analysis of all respondents in the survey who expressed “strong” opinions on gender representation in the abstract. There were 935 respondents who fit this criteria.

Table 3 shows the results of our first analysis (with 2016 data). Here, a respondent’s female status is positively but weakly associated with female candidate support in Group 3 ( $p = 0.06$ ), and significantly so in Groups 3 and 4 together ( $p < 0.05$ ), but not in Group 4 alone. We suspect the latter result is due to the gender-balancing impact that candidate information (provided only to Group 4 respondents) has on male respondents’ preferences.

Table 3: Logistic regressions of female candidate support on respondent characteristics.

	(1) Group 3 No Info Voted for Female	(2) Groups 3 & 4 Voted for Female	(3) Group 4 With Candidate Info Voted for Female
Female	0.433* (1.88)	0.333** (2.07)	0.293 (1.23)
Age	0.00103 (0.14)	0.000121 (0.02)	-0.00237 (-0.34)
Centrist	0.0717 (0.24)	-0.00819 (-0.04)	-0.0686 (-0.25)
Liberal	0.318 (1.10)	0.0789 (0.41)	-0.130 (-0.47)
<i>N</i>	402	815	400

*t* statistics in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.001$

*Note: The dependent variables are dichotomous measures capturing whether or not respondents voted for a female candidate. All models include fixed effects for party affiliation, as well as controls for levels of education. These are omitted from the table for space reasons.*

Table 4 shows the results of our second analysis in which we control for candidate characteristics (still using only the 2016 data). Here, we look at how a candidate performed differently across male and female respondents in Group 3 (compulsory preference vote with no information). We find that a candidate’s female status is associated with a 6.7 percentage-point increase ( $p < 0.05$ ) in the share of preference votes that they received from women who supported the candidate’s party list. However, there is no significant relationship between the candidate’s female status and the share of preference votes received from men who

supported the candidate’s party list.

Table 4: OLS regressions of candidate’s vote share—from among male versus female party list supporters—on candidate attribute predictor variables.

	(1) Share of Votes from FEMALE Preference Voters in Candidates Party	(2) Share of Votes from MALE Preference Voters in Candidates Party
Female	0.0674* (2.59)	0.0290 (0.93)
Experience	0.0771** (3.13)	0.0715* (2.41)
Age	0.000505 (0.48)	0.00161 (1.28)
University of Tokyo	0.197*** (4.55)	0.157** (3.00)
Observations	164	164

*t* statistics in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

*Note: Unit of analysis is candidate, not survey respondent. The dependent variable for Model 1 is the share of a candidate’s preference votes from all Group 3 female respondents who supported the candidate’s party list. The dependent variable for Model 2 is the share of a candidate’s preference votes from all Group 3 male respondents who supported the candidate’s party list. Both models include party fixed effects, which are omitted from the table for space reasons.*

## 8 External Validity

As is the case with any research design, it is important to consider (1) how well the sample represents its target electorate, (2) whether the results are indicative of voting behavior that we can expect in a real world context, and (3) whether these findings would translate to other political systems.

The first of these considerations is a function of sampling procedure. Our national samples of Japanese citizens are both non-probability samples; however recruitment was designed to match electorate population demographics in terms of age, gender, prefecture of residence, income, and education via stratified sampling of the Qualtrics Panels respondent pool. Figure A.2 in the Appendix provides a summary of these demographic characteristics for 2016 (2019 to be updated). We do not expect the online format of our survey, nor the timing of its implementation to render the sample fundamentally distinct from the general Japanese electorate.<sup>20</sup> Being conducted entirely in the week leading up to actual voting, there is minimal opportunity for meaningful differences between our sample and the target population in terms of the information environment, issue salience, and general political trends surrounding the election.

The second consideration, regarding behavioral generalizability, hinges on whether the survey's instruments and treatments capture the real election environment closely enough to induce the same judgments and choices from respondents that would be made in an actual vote setting. While this is typically an area of deficiency for experimental studies, our survey uses the election's entire pool of real candidates and a ballot form that was identical to that which appeared in the voting booths of each prefecture. This design not only strengthens the survey instruments' verisimilitude, but also affords us the unique opportunity to directly compare the similarity in behavior between respondents in our sample and voters in the actual election. By comparing the vote choices of our control group (Group 1)—those whose survey ballots perfectly matched the real ballots—to the actual election results, we can assess behavioral generalizability.

In terms of the study's primary dependent variables—support rates for female candidates and rates of preference voting in the national tier of the 2016 election—the sample's estimates of the true population parameters are remarkably accurate. Using likely voters from our control group (respondents who reported having voted in the previous election and also having intentions to vote in 2016), the survey predicted that the overall rate of preference voting would be 24 (+/− 5.4) percent. The actual rate in the election was 25 percent. The

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<sup>20</sup>Household ownership rates of smartphones and computers—the devices through which our survey was accessible—exceed 95% and 73% respectively (*Ministry of Internal Affairs and Communications*, N.d.).

survey also predicted that female candidates would garner preference votes from a mere 3 (+/- 2.2) percent of all voters. In the actual election, female candidates obtained votes from 2 percent.

In terms of the distribution of national tier partisan preferences across the electorate, the survey accurately predicted support rates for 10 of the 12 parties in the election (see Appendix Figure A.4). In the prefectural tier, there were a total of 245 candidates running in 45 different races. The survey correctly identified 70 percent of the winners across all of these races and showed perfect rank accuracy (order of candidates from highest to lowest vote earners) in over half of the prefectures. Naturally, the survey performed best in the more populous prefectures, such as Tokyo, where recruitment was able to yield larger sample sizes (see Appendix Figure A.5).

A final consideration to address is whether the experiment's findings could translate beyond their intended target population—Japanese voters—and also apply to elections in other parts of the world. With respect to the impact of altering voting procedures, it is notable that Japan's variant of open-list proportional representation allowing for an optional preference vote is widely used throughout the world. It is currently used for national level elections in Austria, Belgium, Brazil, the Czech Republic, Denmark, Iceland, Greece, Latvia, Luxembourg, Slovenia, Sweden, and Switzerland. Moreover, in many of these countries there is longstanding evidence of gender imbalances among voters in the rates of participation (Kittilson, 2016), and in some cases there is also evidence that women as voters evaluate female candidates more favorably than men (Berggren, Jordahl and Poutvaara, 2010; Giger et al., 2014).

Voters' consideration of gender in candidate evaluations is widely noted outside of Japan, and outside of the context of optional open-list PR elections. It has also consistently been found that even in highly patriarchal societies, voters will not utilize gender cues when more reliable indicators of candidate quality or issue positions are available (Matland and Tezcür, 2011). The potential for ballot information effects on gender representation and election outcomes is likely universal in low information races wherever institutions render personal votes meaningful for the allocation of seats to candidates.

## 9 Policy Implications

The results of our survey experiment and the discussion of external validity point to two important policy implications. The first is that providing information about candidates, including female candidates, to voters may help to increase the share of voters who are willing to cast their ballot for a woman. In Japan, this information is readily available during campaigns, and many voters who visit the polling station will have no doubt already decided on how (for whom) they will vote. However, for voters who show up to the polling booth with less information, or who have decided which party to support but have not yet committed to voting for a candidate, providing biographical information on candidates in the polling place may help to increase the share of votes going to female candidates.

Importantly, this policy prescription ought to apply not only to the open-list PR context we consider here, but also other electoral system contexts that feature intraparty competition, such as many primary elections in the United States. Furthermore, providing information would be relatively low cost, and would not fundamentally alter the rules or practices of existing voting systems. Indeed, some states, such as California, already provide a certain amount of biographical details about each candidate directly on the ballot. Irish ballots additionally include a photo of the candidate.

The second policy implication is that switching from optional to compulsory preference voting would also increase the share of votes for women. This policy change is relevant mainly to open-list systems where the option of preference voting exists, but could be extended to the idea of required fully ranked ballots in ranked-choice systems such as the single-transferable vote (STV) and alternative vote (AV) used in Ireland and Australia, respectively, and hotly debated as potential reforms to state and local elections in the United States. Some countries with open-list PR, such as Finland, already mandate that voters cast their ballot with a preference for one candidate. Others, including Japan, are flexible, but the results of our experiment suggest that this flexibility may hurt female candidates. Unlike the first policy implication, the introduction of compulsory preference voting where it does not already exist has the drawback of limiting the choice of voters to abdicate the election of candidates on their preferred party's list to other voters.

## 10 Conclusion

Voting systems around the world, within countries, and even within individual legislative chambers, differ in the way that they structure choices and present information to voters. We know from previous studies that voters' decision-making strategies are sensitive to this electoral environment and that the personal characteristics of candidates become more important when cues such as partisanship do not allow voters to adequately narrow their options. Recent research suggests that these conditions may be unfavorable to female candidates when voters draw negative inferences about candidate expertise from existing gender stereotypes. To the extent that women as voters harbor stronger preferences for women as office seekers, female candidates may also be disadvantaged by comparatively lower rates of political participation among women in the electorate.

In this study, we have examined voter support for female candidates in Japan, where women's political representation remains comparatively quite low. Specifically, we have looked at the electoral environment of the national tier of Japan's House of Councillors, which features both high degrees of intraparty competition and unbalanced participation in terms of casting preference votes. We used a survey experiment conducted during the campaign periods of the 2016 and 2019 upper house elections to test the impact of two reforms to the voting system on the support rates for all candidates running in those elections. Our theoretical expectations—that (1) providing voters with candidate background information, as is done on election ballots in some states and countries, and (2) requiring a preference vote, would redound to the benefit of female candidates—are supported by the results of our experiment.

For the purposes of addressing unbalanced gender representation in Japan, these findings are consequential because they present a possible institutional alternative to the more standard fix of legally imposing gender quotas on party lists—which has proven politically difficult to accomplish in Japan. Only 21 women were elected across the last two elections in the national tier of Japan's upper house. Our results suggest that number could have been as high as 28 under conditions of full preference voting, and 31 with full preference voting and the provision of candidate information on ballots - nearly a 50% increase without im-

posing any changes on party candidacies or voter attitudes towards women as lawmakers.<sup>21</sup> However the findings are also relevant outside of Japan given that the electoral conditions of the House of Councillors—high degrees of intraparty competition with limited candidate information—are commonly found elsewhere, such as in primary elections in the United States, and other open-list PR elections such as those of Brazil’s Chamber of Deputies.

Our findings contribute to two streams of existing literature on gender representation. On the institutional side, we highlight the importance of an often overlooked component of open-list PR systems, namely, whether or not preference voting is compulsory. With respect to voter cues and political psychology, our results also suggests that basic background information can be a powerful tool for overcoming gender disadvantages that might otherwise make elections difficult for female candidates.

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<sup>21</sup>These figures are based on an analysis of party seat allocations and candidate vote totals under each treatment condition in the surveys. Due to the occurrence of vote ties for some candidates we conduct counts of both the minimum and maximum number of women who could have won seats under each treatment condition. The minimum was 27 with full preference voting, and 30 with full preference voting and candidate information.

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# Appendix

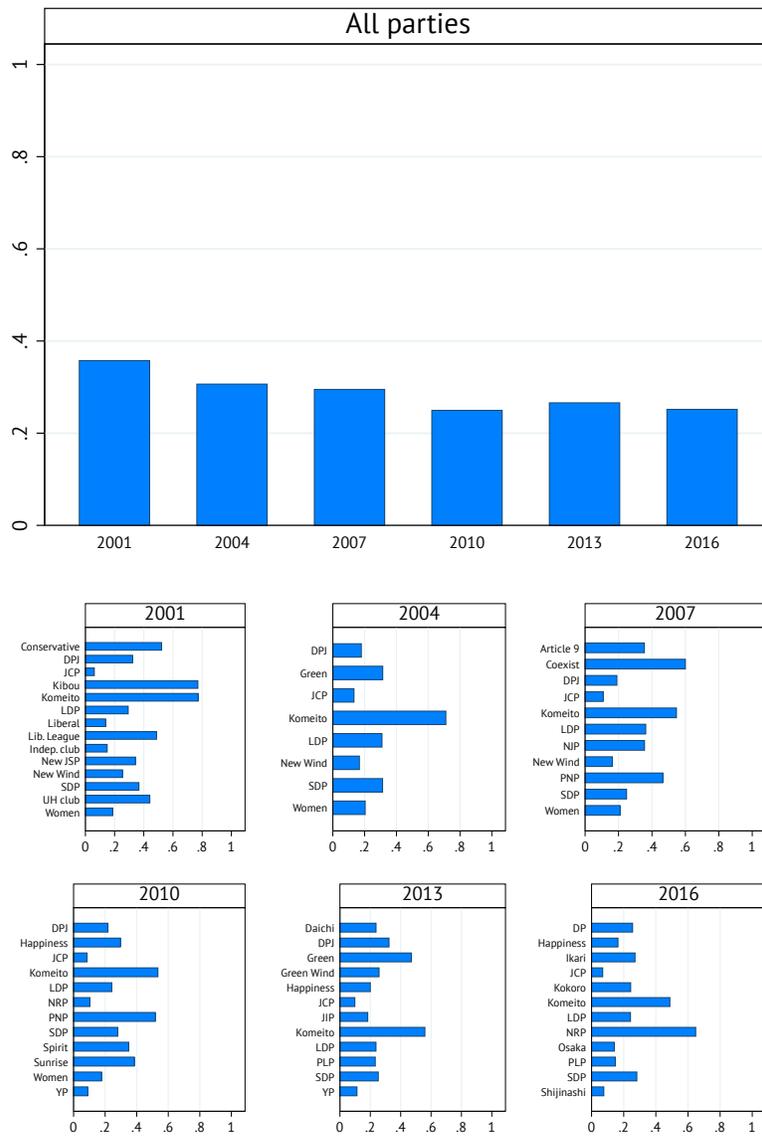


Figure A.1: Proportion of party votes cast for individual candidates in House of Councillors elections, 2001-2016.

*Note: Left panel pools all parties together in each election year; right panel gives proportion for each party in each year.*

Table A.1: Female candidates and winners in the 2016 House of Councillors election.

		<b>Candidates</b>			<b>Winners</b>		
		Prefectural	National	Total	Prefectural	National	Total
LDP	Male	41	20	61	31	14	45
	Female	7	5	12	5	5	10
	Total	48	25	73	36	19	55
DP	Male	25	19	44	15	10	25
	Female	8	3	11	6	1	7
	Total	33	22	55	21	11	32
Komeito	Male	4	17	21	4	7	11
	Female	3	0	3	3	0	3
	Total	7	17	24	7	7	14
Osaka Ishin	Male	7	17	24	2	3	5
	Female	3	1	4	1	1	2
	Total	10	18	28	3	4	7
JCP	Male	7	29	36	1	3	4
	Female	7	13	20	0	2	2
	Total	14	42	56	1	5	6
SDP	Male	3	6	9	0	0	0
	Female	1	1	2	0	1	1
	Total	4	7	11	0	1	1
PLP	Male	0	2	2	0	0	0
	Female	0	3	3	0	1	1
	Total	0	5	5	0	1	1
Others/indep.	Male	78	18	96	3	0	3
	Female	31	10	41	2	0	2
	Total	109	28	137	5	0	5
All parties	Male	165	128	293	56	37	93
	Female	60	36	96	17	11	28
	Total	225	164	389	73	48	121

*Note: Data from the Ministry of Internal Affairs and Communications.*

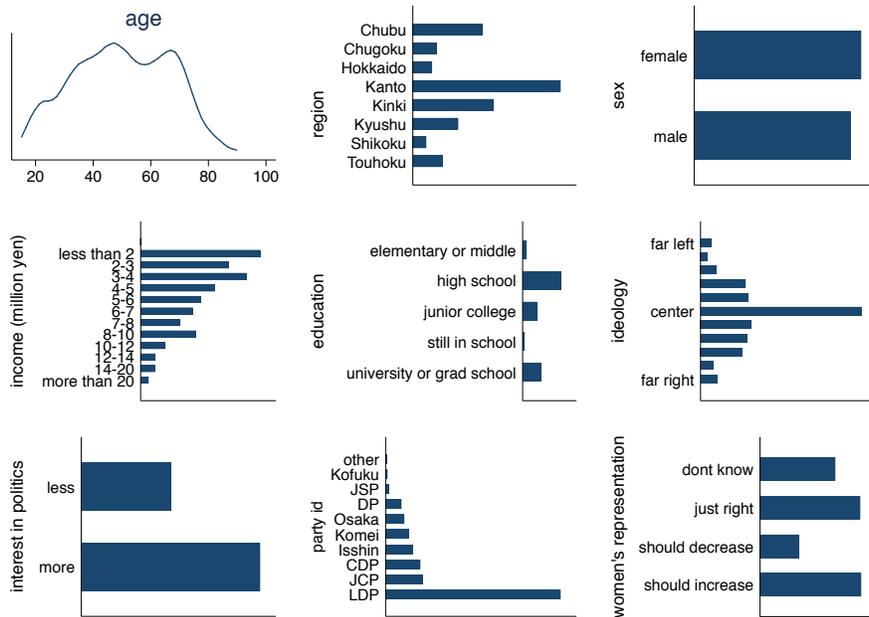


Figure A.2: Characteristics of survey respondents.

*Note: Figure provides a summary of demographic characteristics across both surveys (age, gender, prefecture of residence, income, and education) as well as the sample's distribution on other variables relevant to our research question. These include respondent self-reported ideology, partisan identification, level of engagement with politics, and opinions on the current state of women's political representation in Japan. 2016 data only.*

Table A.2: Covariate balance across experimental conditions in 2016 survey.

Covariates	Group 1	Group 2	Group 3	Group 4
age	1.000	1.003	1.001	0.999
female	1.000	1.200	0.916	1.071
income	1.000	0.996	1.022	1.014
education:				
middle school	1.000	1.000	1.000	1.000
high school	1.000	0.900	1.035	1.061
junior college	1.000	0.724	0.779	0.777
still attending	1.000	0.694	0.852	0.768
universtiy	1.000	0.779	0.915	1.199
region:				
hokkaido	1.000	1.000	1.000	1.000
tohoku	1.000	1.541	1.098	1.298
kanto	1.000	1.236	0.972	0.825
chubu	1.000	1.776	1.439	1.234
kinki	1.000	1.274	1.178	1.239
shikoku	1.000	1.405	1.143	1.136
kyushu	1.000	1.142	1.190	0.984

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

*Note: Multinomial logit running treatment assigned on continuously and dichotomously measured covariates, using the control group (group 1) as the base of comparison, and reporting relative risk ratios. Standard errors are omitted and significant effects are indicated where stars appear next to ratios. In this case there are no significant effects, suggesting the randomization of the 2016 survey was successful.*

Table A.3: Covariate balance across experimental conditions in 2019 survey.

Covariates	Group 1	Group 2	Group 3	Group 4
age	1.000	0.989*	0.995	0.982***
female	1.000	0.835	0.801	0.700*
income	1.000	0.978	1.007	0.982
education:				
middle school	1.000	1.000	1.000	1.000
high school	1.000	0.842	0.999	1.312
junior college	1.000	0.958	0.785	1.366
still attending	1.000	0.841	0.598	1.342
universtiy	1.000	1.041	0.935	1.445
region:				
hokkaido	1.000	1.000	1.000	1.000
tohoku	1.000	0.736	0.965	0.988
kanto	1.000	0.701	0.786	0.738
chubu	1.000	0.743	0.868	0.874
kinki	1.000	0.985	0.899	0.716
shikoku	1.000	1.054	1.048	1.159
kyushu	1.000	0.782	1.477	0.785

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

*Note: Multinomial logit running treatment assigned on continuously and dichotomously measured covariates, using the control group (group 1) as the base of comparison, and reporting relative risk ratios. Standard errors are omitted and significant effects are indicated where stars appear next to ratios.*

*Results show a slight imbalance on age between the control and treatment groups 2 and 4, as well as on gender between the control and treatment group 4 in the 2019 survey. We test our main effects controlling for these covariates and still find significant effects for each treatment.*

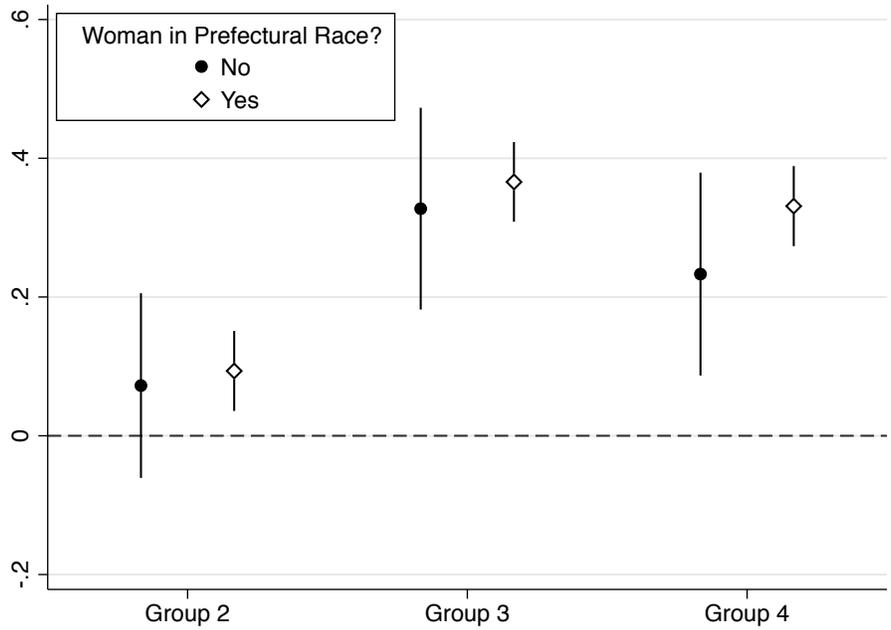


Figure A.3: Main effects (relative to Group 1 control), by presence of female candidate in the prefectural race.

*Note: Figure shows the estimated effects of each treatment group relative to the control group (Group 1). Of 45 prefectural races, 13 featured no women running. Although this is 29% of races, most were rural prefectures, so it represents only 13% of respondents. 2016 data only.*

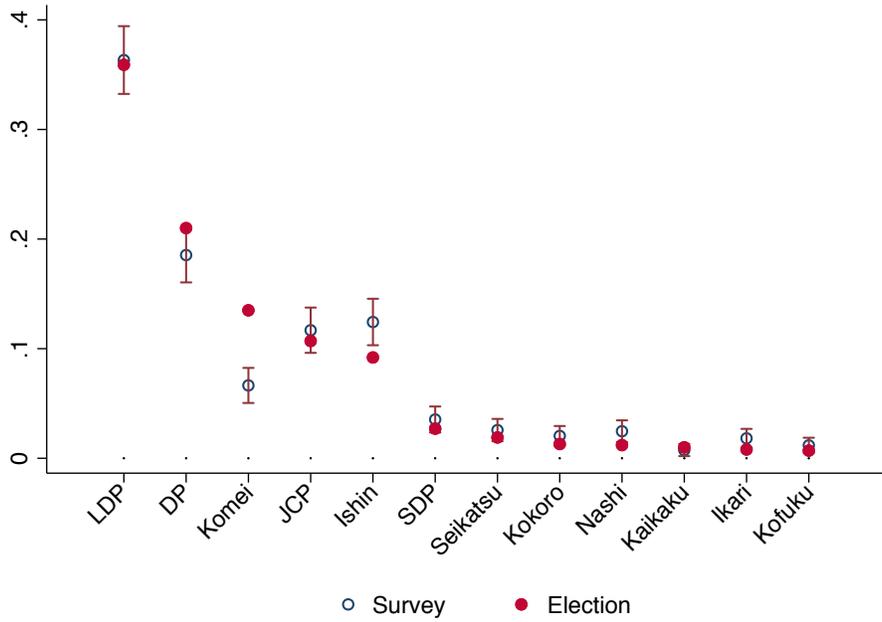


Figure A.4: Party support rates: survey vs. election.  
*Sample estimates of population parameters are bound by 95% confidence intervals. 2016 data only.*

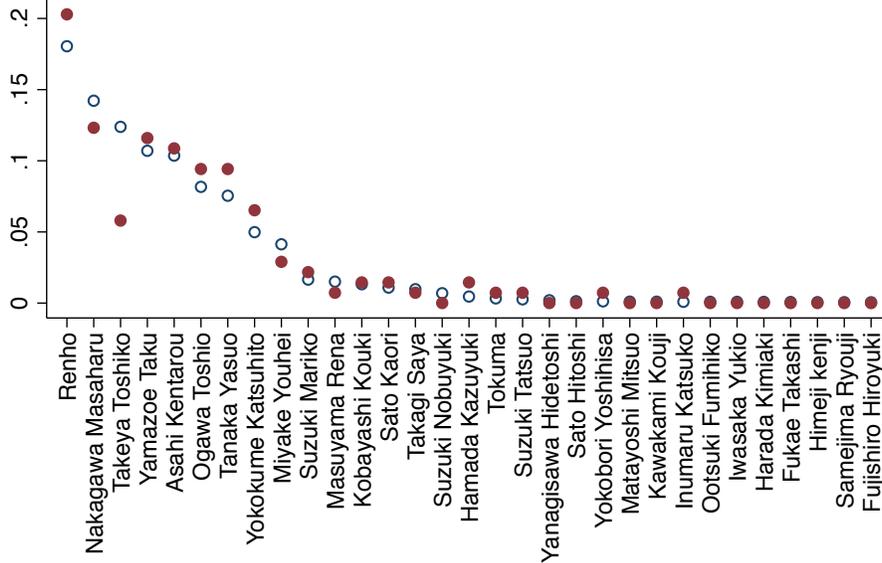


Figure A.5: Candidate support rates in the Tokyo prefectural race: survey vs. election.  
*The percentage of real votes (RED) accruing to each candidate who ran in this race is contrasted to the percentage they received among survey respondents (BLUE). 2016 data only.*