Gendered Smiles in Electoral Campaigns:

Candidate Facial Expressions and Electoral Returns

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Abstract

Candidates manage their public image to gain favorable evaluations from voters. Do voters' gendered expectations shape visual self-presentation, leading female candidates to smile more than male candidates, and do voters reward smiling differently by candidate gender? We examine candidates' facial expressions in campaign photographs and their electoral returns. Using automated facial coding of 9,427 manifesto photographs from Japan's House of Representatives elections (1996-2021) and 1,072 campaign posters from the 2024 election, we find that female candidates display more pronounced smiles than male candidates. We also find a clear gender gap in the electoral returns to smiling: for women, greater smile intensity is associated with higher vote shares, whereas this relationship is much weaker for men. Evidence from the 2024 posters suggests that these patterns vary across party contexts. These findings suggest that gender stereotypes structure not only candidates' campaign rhetoric, but also their visual self-presentation and voters' responses to it.

Keywords

Campaign photographs; Election results; Facial expressions; Gender stereotypes; Image analysis; Nonverbal communication

1. Introduction

In electoral politics, female and male candidates compete for voter support in an environment where evaluations are often shaped by gender-based stereotypes (McDermott 1998; Mo 2014). These stereotypes influence not only perceptions of policy positions but also trait attributions (Dolan 2014; Endo and Ono 2023; Huddy and Terkildsen 1993; Koch 2002). Men are often stereotyped as tough and agentic, whereas women are expected to be compassionate, kind, and likable (Bauer 2020; Sweet-Cushman 2022). Departures from these expectations can improve perceived competence (Wang et al. 2023) but may also impose electoral costs (Cassese and Holman 2018; Krupnikov and Bauer 2014; Ono and Yamada 2020; Schneider and Bos 2014; Vallejo Vera and Gómez Vidal 2022). Consistent with this logic, previous research shows that female candidates use more positive and less negative emotion in their campaign rhetoric than male candidates do (Barnes et al. 2022; Boussalis et al. 2021).

Campaign communication, however, goes beyond speeches and manifestos (see Dai and Kustov 2022; Ono and Miwa 2022) to include nonverbal elements such as photographs and facial expressions (see Carpinella and Johnson 2016; Schill 2012). Visual cues—including physical appearance and facial expression—allow voters to form rapid impressions of candidates, and these impressions can shape voter evaluations and electoral outcomes (Ahler et al. 2017; Druckman 2003; Rosenberg and McCafferty 1987). Candidates are aware of these effects and prominently feature their portraits in campaign materials. Although attractiveness and smiling have been linked to electoral success (Asano and Patterson 2018; Berggren et al. 2010; Horiuchi et al. 2012; King and Leigh 2009; Praino and Stockemer 2018; Rosar et al. 2008; Rosenberg et al. 1986), whether *candidate gender* moderates the electoral returns to these nonverbal cues remains underexplored.[1] A

[1] Televised debates, campaign advertisements, and candidate websites have been extensively researched as tools of political communication, particularly in the context of US elections (see

notable exception is Bauer and Carpinella (2017), who show that gender-incongruent visual information affects voter evaluations. Their focus, however, is on contextual symbols that cue feminine or masculine traits (e.g., children, soldiers), rather than on candidates' facial displays themselves.

We address this gap by examining gender differences in candidates' facial expressions in campaign photographs and whether the electoral returns to these expressions vary by candidate gender. Smiling is a particularly useful case because it is a salient and easily interpretable facial cue in campaign images. If smiling were uniformly advantageous and electorally crucial, one might expect most candidates to smile in campaign materials. In practice, however, campaign images vary widely. In Japan, for example, many candidates adopt calm or sober expressions (Tsai et al. 2016). Research on gender stereotypes in politics shows that voters ascribe agentic traits to men and communal warmth to women (e.g., Huddy and Terkildsen 1993; Dolan 2014; Endo and Ono 2023) and often penalize departures from these expectations (Rudman and Glick 2001; Bauer 2020; Ono and Yamada 2020). Because smiling conveys communal impressions (LaFrance, Hecht, and Paluck 2003), it may be especially consequential for women; indeed, smiling has been found to benefit women in multicandidate fields (Koo 2022). This logic leads to two expectations: women should be more likely than men to smile in campaign photographs, and the electoral returns to smiling should be greater for women than for men.

To test these expectations, we examine facial displays in two complementary datasets from Japan. In Study 1, we apply automated facial coding to 9,427 candidate portraits from campaign manifestos used in Japan's House of Representatives elections between 1996 and 2021,

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Boussalis et al. 2021; Dolan 2005; Druckman et al. 2009; Sapiro et al. 2011). Much of this literature focuses on the content and emotional tone of candidates' messages, with relatively little attention paid to their visual features.

and link these data to constituency-level election results. In Study 2, we analyze 1,072 campaign posters collected nationwide during the 2024 election campaign using a different facial-coding approach. Japan provides a useful setting for testing our hypotheses because standardized candidate portraits are ubiquitous and highly visible, allowing systematic comparisons across candidates and elections.

Across both studies, we find that women display more pronounced smiles than men, even after accounting for candidate characteristics such as age and incumbency. We also find gender-asymmetric electoral returns to smiling: among women, lower smile intensity is associated with lower vote shares, whereas this relationship is weaker among men. Evidence from the 2024 posters further suggests that the strength of these associations varies systematically with party context, indicating heterogeneity in the electoral returns to smiling.

Our study advances research on nonverbal communication and gender dynamics in electoral politics in three ways. First, it extends evidence on gendered campaigning beyond rhetoric and verbal messaging to visual and emotional self-presentation, which highlights how nonverbal cues shape gendered evaluations of candidates. Second, by combining two data sources, it documents both enduring patterns and contextual heterogeneity in the electoral effects of smiling. Third, it leverages multiple measurement approaches to measuring facial expressions and assesses their robustness, helping to establish an empirical foundation for the large-scale study if nonverbal visual cues.

2. Facial expressions in campaign photographs: Gendered expectations and electoral returns

Candidates recognize that visual self-presentation in campaign materials can play an important role in elections because many voters rely on such materials as salient cues and heuristics when evaluating candidates (Lau and Redlawsk 2011). Voters often form rapid judgments based on visual information (Ambady and Rosenthal 1992; Ballew and Todorov 2007; Olivola and Todorov 2010).

Accordingly, candidates may care not only about what they say in their messages but also about how they appear on election posters and other campaign materials. For instance, some candidates manipulate their portraits to appear younger, such as by darkening gray hair or reducing wrinkles (Kohno and Sakurai 2020). One salient dimension of visual self-presentation that candidates can manipulate is their facial expression. Through their facial expressions, candidates can convey emotions to voters (Ekman 1993; Horstmann 2003), and the expressions displayed in campaign materials can elicit affective responses from viewers (Sagliano et al. 2022; Senior et al. 2024).

Research on emotional expression shows that emotions are not displayed uniformly across individuals in identical situations. In particular, considerable gender differences exist in expressiveness. A large body of research finds that women tend to be more emotionally expressive than men (Brody, 1999; Hess et al., 2000; Kring & Gordon, 1998). Facial expressions, particularly smiles, are widely recognized cues that convey positive affect (Ekman et al. 1990; Ekman and Friesen 1982; Ekman et al. 1980). Studies consistently show that women smile more than men (Briton and Hall 1995; Hall and Halberstadt 1986; LaFrance and Hecht 1999). A meta-analysis of over 400 studies conducted by LaFrance et al. (2003) also suggests that gender differences in smiling are especially pronounced when behavior is monitored and evaluated, and even more so when the task involves persuading others. Electoral campaigns are precisely such settings: candidates are subject to public evaluation and must persuade voters to support them. We therefore expect gendered patterns in facial expressions in campaign photographs.

Hypothesis 1 (gendered smiling): Female candidates are more likely than male candidates to display higher levels of smiling in their campaign photographs.

Gender differences in smiling are also embedded in gendered expectations about how women and men should behave in politics. While a meta-analysis of experimental research

indicates that voters tend to exhibit a modest positive bias toward female candidates overall (Schwarz and Coppock 2022), other studies show that voters may penalize female candidates who deviate from gender-stereotypical behavior (Bauer 2020; Ono and Yamada 2020). For example, an analysis of tweets posted by electoral candidates in the United Kingdom finds that female candidates are less likely than male candidates to express negative sentiments, and that when they do express negativity, they receive more negative replies than their male counterparts (Barnes et al. 2022). If voters apply gendered evaluative standards to nonverbal cues, then smiling—an expressive display that conforms to stereotypically communal expectations—should be more consequential for women's electoral support than for men's. This logic implies not only that smiling should be positively associated with vote share, but also that the magnitude of this association should differ by gender:

Hypothesis 2 (electoral returns to smiling): The positive association between smiling in campaign photographs and vote share is stronger for female candidates than for male candidates.

3. Data and research design

We test these hypotheses using campaign materials from Japan's national lower house elections. These elections provide a useful setting to test them because voters cast ballots for individual candidates in single-member districts, and at the same time, most candidates prominently display their faces in campaign materials. Japanese voters are exposed to candidate photographs through two standardized channels before voting: official campaign posters and election manifestos. Campaign posters are displayed on designated boards installed by election commissions in each district,[2] while the manifestos are printed and delivered to individual households before Election

[2] The Public Offices Election Law Enforcement Order determines the number of official poster

Day. Both are mandated by electoral law. As a result, voters are substantially exposed to candidates' faces during the campaign period. For example, in the 2024 general election, the Tokyo Metropolitan Election Commission installed 14,230 poster boards across the city, making exposure to candidate photographs nearly ubiquitous (Tokyo Metropolitan Election Commission 2024, 6).

We specifically employ two complementary datasets and present two studies. Study 1 uses candidates' photographs appearing in official ***manifestos*** for nine general elections held between 1996 and 2021.[3] Study 2 extends the analysis to ***campaign posters*** for the 2024 general election, allowing us to assess the robustness of the findings across a different medium, measurement strategy, and party-system context. The manifestos used in Study 1 are monochrome, newspaper-style leaflets that list each candidate's photograph, name, party affiliation, and slogan, and are distributed to households during the campaign period. By contrast, the campaign posters analyzed in Study 2 feature candidates' names and color photographs and are displayed throughout the campaign on publicly provided poster boards in streets and neighborhoods. Both types of materials are publicly funded—ensuring broad distribution and visibility—but can be designed individually by candidates at their own discretion and are intended to reach voters directly.

Study 1: Manifesto photographs, 1996-2021

For Study 1, we analyze candidates' photographs printed in official campaign manifestos. These manifestos, archived in the National Diet Library, provide comprehensive coverage across election years and enable to construct a long-term dataset. In total, we identify 11,497 candidates, of whom

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boards in each voting district based on the size of the electorate and the district's geographic area.

[3] The 1996 general election marked the first time the electoral system shifted from the single non-transferable vote system to a mixed system combining single-member district plurality with proportional representation. To control for the effects of these electoral system changes, this study exclusively focused on candidates from single-member districts from 1996 onward.

9,427 (82.0%) provide portrait images of sufficient quality for analysis.[4] This large, longitudinal dataset allows us to examine whether gendered patterns in smiling and their electoral consequences persist across multiple elections and changing political environments.

Because the manifesto photographs are relatively low in resolution due to printing and scanning, they are not well-suited to fine-grained facial coding. We therefore use *OKAO Vision*, an automated facial-analysis program that measures the intensity of a candidate's smile on a continuous scale from 0 (no smile) to 1 (full smile) and performs relatively well on the low-resolution, grayscale images typical of manifesto prints.[5] The software relies on mathematical models of human facial contours (Bookstein 1991; Lestral 1997; Viola and Jones 2004) and uses a Bayesian statistical approach to generate posterior distributions of smile scores (see Horiuchi et al. 2012). The measurement procedure involves three steps: (1) scanning each candidate's photograph, (2) identifying the candidate's gender, and (3) calculating the smile score. We repeat this procedure three times for each candidate and average the resulting scores to reduce minor image blurring introduced during scanning and improve measurement reliability (see Appendix 4 for details).

Study 2: Campaign posters, 2024

[4] We excluded candidates with photographs that were unusable due to poor image quality. These were primarily low-resolution images that failed to meet the analytical quality requirements of *OKAO Vision*. This process yielded a robust dataset of 9,427 facial photographs for rigorous statistical analysis. Importantly, the number 9,427 is the result of a 'duplicate' count—that is, individuals are counted as candidates in each general election in which they participate, regardless of repeated candidacies.

[5] For more information on the software, see the Omron Corporation website at https://components.omron.com/us-en/products/sensors/human-image-solution/software-library/software-library (accessed on April 14, 2025).

Study 2 focuses on campaign posters from the 2024 general election. Unlike manifestos, campaign posters are not archived and are typically removed and discarded immediately after Election Day. We therefore collected these materials directly from official poster boards in each district during the campaign period by photographing each candidate's poster nationwide. This procedure yields usable images for 1,072 of 1,344 candidates running in single-member districts (79.8% coverage). The poster data offer higher-resolution, color images from a single election held under a relatively stable party system, which is particularly useful for examining party-specific contexts and potential heterogeneity in the electoral returns to smiling.

The higher resolution of the poster images enables us to use *FaceReader* for our analysis. *FaceReader* is an automated facial-coding program based on the Facial Action Coding System (FACS) (Ekman 1978) that evaluates facial expressions. Unlike *OKAO Vision*, which is designed primarily to detect smiles, *FaceReader* captures a broader range of emotional facial movements and is widely used in psychological research. Its training data includes Asian faces, and its validity has been tested through comparisons with human emotion recognition (e.g., Lewinski et al. 2014). *FaceReader* generates intensity scores ranging from 0 to 1 for seven emotional categories: happy, sad, angry, surprised, scared, disgusted, and neutral. Following prior research, we use the happiness score (*Happy*) as an indicator of smile intensity (see Obayashi et al. 2024). In FACS terminology, this measure corresponds to the co-activation of Action Units 6 (AU6: cheek raiser) and 12 (AU12: lip corner puller).

To assess whether our measurement is sensitive to the choice of automated coder, we also analyze the same poster images using *OKAO Vision* (following the same procedure as in Study 1) and compare the smiling scores generated by *OKAO Vision* with the Happy scores produced by *FaceReader*. We evaluate the degree of alignment between the two measures and assess whether it differs by candidate gender by reporting separate correlations for women and men. Finally, we replicate our main analyses using *OKAO Vision*-based measures as robustness checks. We find that

the two measures are highly correlated (r = 0.836), and the results based on *FaceReader*'s Happy scores are replicated by those based on *OKAO Vision*'s smiling scores. All results are reported in Appendices 5 and 6.

In sum, these two studies provide both longitudinal and contemporary tests of our hypotheses using separate data sources and measurement techniques. Study 1 identifies broad, long-term patterns in gendered smiling and its electoral consequences, while Study 2 provides a more detailed analysis of campaign posters from the 2024 general election and allows us to examine more closely how party contexts may shape the electoral returns to smiling.

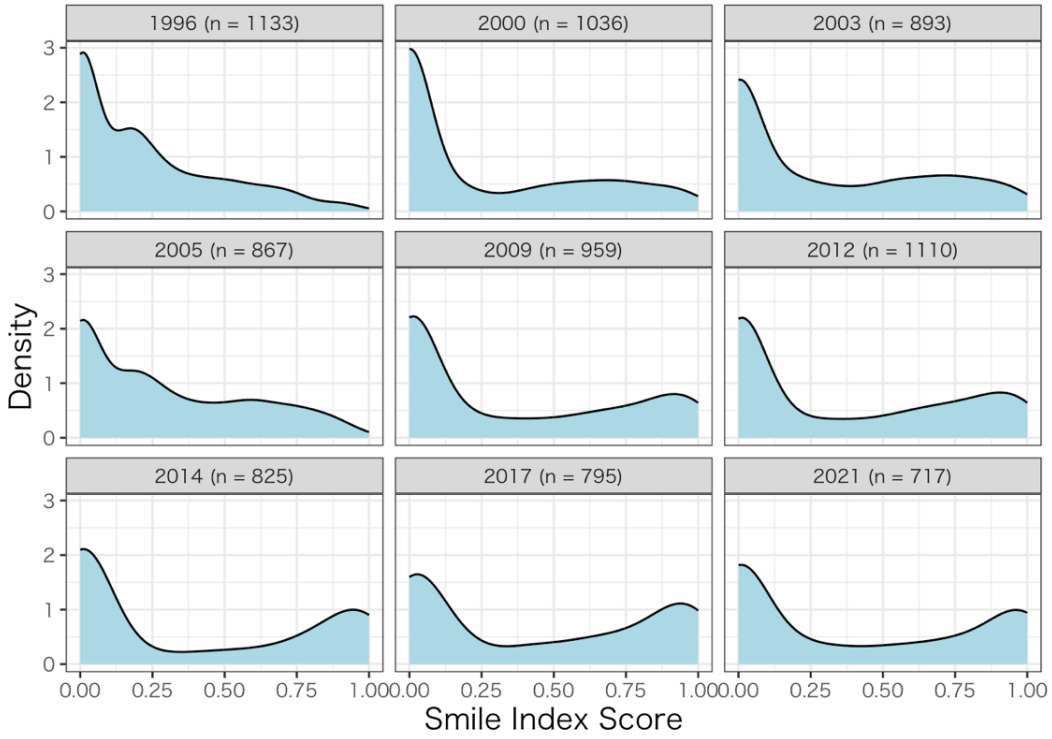
4. Results of the empirical analyses

Study 1: Evidence from campaign manifestos, 1996-2021

Across the nine elections held between 1996 and 2021, a total of 11,497 candidates contested seats in Japan's Lower House, of whom 9,427 (82.0%) included portrait photographs of sufficient quality for analysis in their manifestos.[6] Figure 1 displays histograms of the distribution of smile levels in manifesto photographs by election year and gender. The horizontal axis represents the smile index score (0-1), and the vertical axis indicates the relative frequency density. As shown in this figure, not all candidates used smiling portraits in their manifestos. Although smiling photographs have become more common in recent years, substantial variation in smile intensity remains across candidates. Most importantly, a clear gendered pattern is visible: many male candidates have lower smile scores, whereas female candidates are more likely to use portraits with higher smile scores. This descriptive evidence is consistent with Hypothesis 1. However, the observed gender difference in smiling may partly reflect other factors, such as the tendency for female candidates to be younger than male candidates. We therefore turn to multivariate analyses.

[6] Table A1-1 in Appendix 1 reports, for each election year, the number of winners, the total number of candidates, and the number who included their portraits in the manifestos.

Male candidates (Panel A)



Female candidates (Panel B)

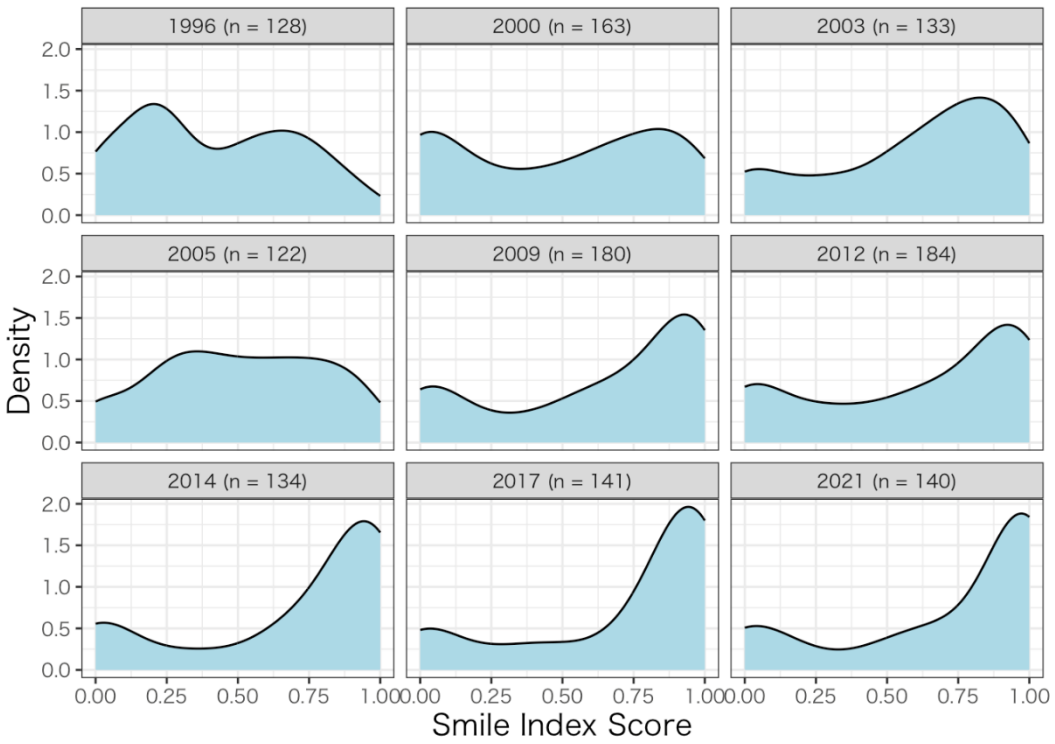


Figure 1: Distributions of the smile index in manifestos by candidate gender (1996-2021)

Note: The horizontal axis shows candidates' smile index scores (0-1) from *OKAO Vision*; the vertical axis indicates the relative frequency density. Each panel corresponds to an election year. Numbers in parentheses indicate the total number of candidates in the dataset for that year.

To test Hypothesis 1 (gendered smiling), we estimate an ordinary least squares (OLS) regression in which the dependent variable is the candidate's smile index (*Smile*), and the key independent variable is candidate gender (*Female* = 1 for women, 0 for men). The model includs controls for age (*Age*) and its squared term (*AgeSQ*), incumbency status (*Incumbent* = 1 if the candidate is an incumbent, 0 otherwise), the number of terms already served (*Number of terms*), the number of competitors in the district (*Number of competitors*), affiliation with the ruling party (*Government* = 1 if the candidate is affiliated with the governing party, 0 otherwise), and dynastic status (*Dynasty* = 1 if the candidate belongs to a political family, and 0 otherwise). We also include election-year and electoral-district fixed effects and cluster standard errors by candidate. Summary statistics for these variables are reported in Table A1-2 in Appendix 1. The mean smile index is 0.362 (SD = 0.374) across 9,427 candidate faces, indicating that candidates generally adopt relatively serious facial expressions. Women account for 13.9% of candidates, 36.5% are incumbents, and 28.0% are affiliated with the governing party.

Figure 2 plots the estimated coefficients and 95% confidence intervals from this model. Consistent with Hypothesis 1, we find substantial gender differences in facial expressions in campaign manifestos: the coefficient on *Female* is positive and statistically significant, indicating that women have smile scores that are, on average, 0.256 points higher than those of men ($p < 0.001$). Substantively, this means that female candidates are considerably more likely than male candidates to select photographs with higher levels of smiling for their campaign manifestos, even after accounting for age, legislative experience, incumbency status, affiliation with the governing party, electoral competition, and dynastic family status. This pattern is robust to alternative specifications, including models that replace the government indicator with party fixed effects; in those models, the coefficient on *Female* remains positive and statistically significant (Appendix 8). Taken together, these results support Hypothesis 1 (gendered smiling).

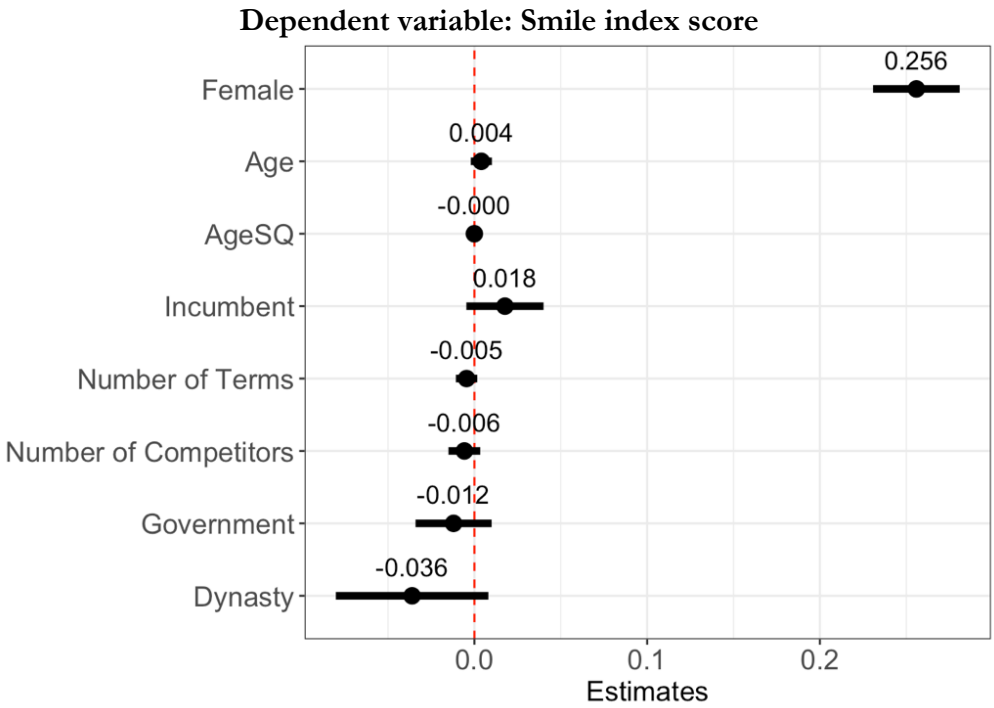


Figure 2: Effects of candidate attributes on the smile index (1996–2021 lower house elections)

Note: Dots show estimated coefficients from the OLS models; horizontal bars indicate 95% confidence intervals (standard errors are clustered by candidate). The model includes election-year and electoral-district fixed effects; coefficients for these fixed effects are omitted for clarity.

We next examine Hypothesis 2 (electoral returns to smiling), which concerns whether smiling in campaign photographs is associated with electoral performance and whether this association differs by gender. To do so, we estimate an OLS regression model with candidates' vote share in their electoral districts as the dependent variable. Vote share has a mean of 27.8% (SD = 19.3) and ranges from 0.1 to 95.3. The main predictors are the candidate's smile index (*Smile*), gender (*Female*), and their interaction (*Smile* × *Female*). The model includes the same set of control variables as in the analysis of Hypothesis 1, along with election-year and district fixed effects. Standard errors are clustered by electoral district. Detailed coefficient estimates are reported in Appendix 1.

Figure 3 presents the estimated marginal effect of smiling on vote shares separately for male and female candidates. Consistent with previous research using the same measurement procedure (Horiuchi et al. 2012), we find that smiling is positively associated with vote share for

both men and women. More importantly, this association is significantly stronger for women than for men. The interaction term (*Smile* × *Female*) is both positive and statistically significant (p = 0.030), indicating that a one-unit increase in the smile index is associated with a 2.26-percentage-point larger increase in vote share for female candidates than for male candidates. In other words, in this baseline specification, women appear to benefit more electorally from smiling in their manifesto photographs than their male counterparts do, consistent with Hypothesis 2.

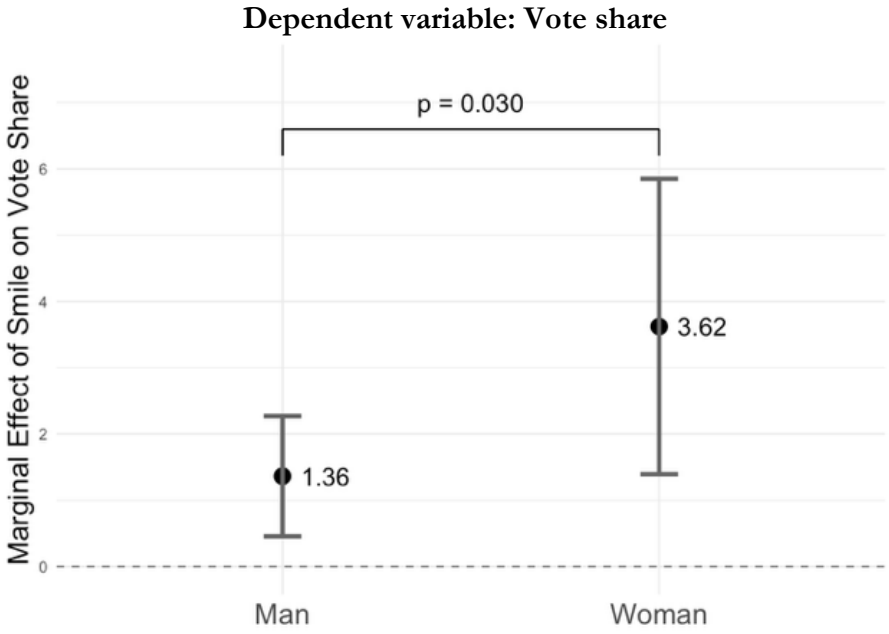


Figure 3: Marginal effects of the smile index on vote share by candidate gender (1996–2021 lower house elections)

Note: Dots show the estimated marginal effects of the smile index on vote share for male and female candidates; horizontal bars indicate 95% confidence intervals. Standard errors are clustered by electoral district.

As an additional robustness check, we incorporate candidate fixed effects and re-estimate the models using within-candidate variation in smiling across elections. The results show that smiling remains positively associated with vote share; however, we find no statistically significant gender difference in this association (see Appendix 7). One possible reason is that within-candidate variation in smiling is limited on average, even though some candidates exhibit substantial changes in either direction over time. At the same time, party contexts vary across candidates and election

years. Because the electoral returns to smiling may depend on party context, we also estimate models with party-year fixed effects, replacing the government indicator (see Appendix 8). In these models, the coefficient on the interaction between *Smile* and *Female* becomes smaller in magnitude and is no longer statistically distinguishable from zero. This pattern suggests that the stronger association observed in the baseline model in Figure 3 partly reflects systematic differences across parties in candidate recruitment, campaign styles, and targeted electorates, rather than solely within-party variation. In other words, smiling women appear to perform especially well in certain party contexts, and controlling for party-year fixed effects accounts for much of this variation. We return to these contextual dynamics and their implications for the electoral returns to smiling in Study 2.

Study 2: Evidence from campaign posters, 2024

To examine whether the findings from Study 1 generalize beyond portraits in campaign manifestos (1996-2021), we extend the analysis to campaign posters from the 2024 lower house election. As noted earlier, candidates may display their posters in designated spaces on public poster boards provided by municipal election commissions in each electoral district. We collected poster images for 1,072 of the 1,344 candidates who ran in single-member districts (79.8% coverage). These posters provide high-resolution color images from a single election held under a relatively stable party system, making them well suited to examining whether the patterns observed in Study 1 replicate in a different medium and political context.

As described in the data and research design section, we use *FaceReader*, an automated facial-coding program developed by Noldus Information Technology, to evaluate each candidate's facial expression. The software implements the FACS to infer emotional expressions from facial muscle movements (Ekman 1978). It generates intensity scores ranging from 0 to 1 for seven emotional categories: happy, sad, angry, surprised, scared, disgusted, and neutral. Following prior research, we use the happiness score (*Happy*) as our indicator of smile intensity (see Obayashi et

al. 2024). In FACS terms, this measure corresponds to the co-activation of Action Units 6 (AU6: cheek raiser) and 12 (AU12: lip corner puller). Figure 4 presents a histogram of *Happy* for the 1,072 candidates, showing substantial variation in smile intensity and a mean score of 0.55. The distribution closely resembles that of the manifesto smile index in Figure 1, suggesting that candidates' smiling behavior on posters broadly mirrors that in manifestos.

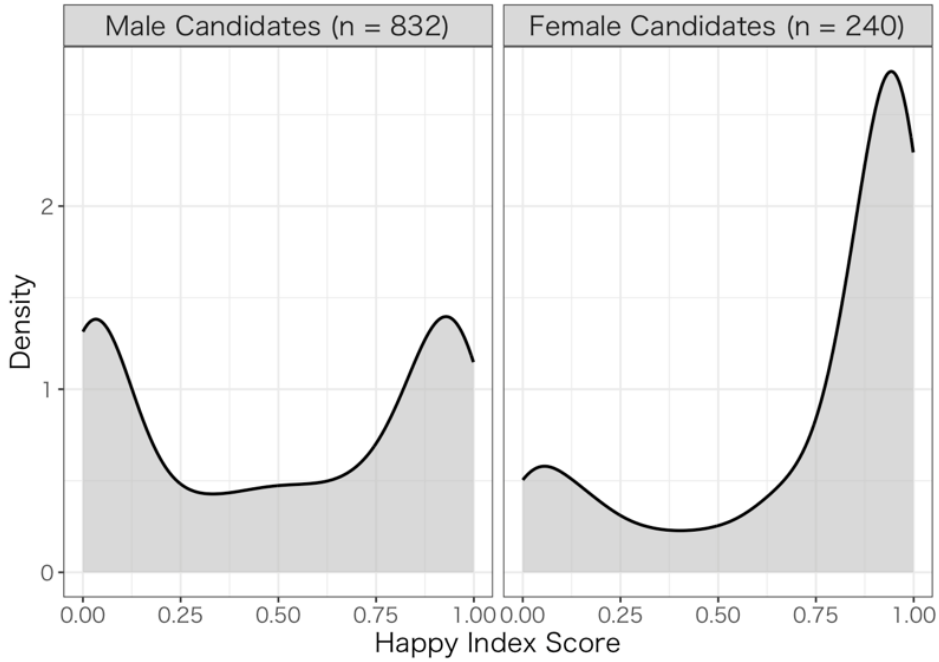


Figure 4: Distributions of Happy (smile intensity) on campaign posters by candidate gender (2024 lower house election)

Note: The horizontal axis shows candidates' Happy scores (0-1) from *FaceReader*; the vertical axis indicates the relative frequency density. Distributions are shown separately for male and female candidates.

We analyze this dataset in the same way to test Hypotheses 1 and 2. Summary statistics for the variables included in the regression models and detailed coefficient estimates are presented in Appendix 2. Figures 5 and 6 show the results for Hypothesis 1. Using ordinary least squares, we regress *Happy* on candidate gender (*Female* = 1 for women, 0 for men), controlling for the same set of covariates as in Study 1—age and age squared, incumbency status, number of terms served, number of competitors, governing-party affiliation, dynastic status—along with district fixed effects. Standard errors are clustered by electoral district. Even after adjusting for these covariates,

female candidates display significantly higher levels of smiling on their campaign posters than male candidates. The coefficient on *Female* is positive and statistically significant, indicating that women's happiness scores are, on average, 0.216 points higher than men's. This result replicates the core finding from Study 1 in a different medium, measurement framework, and election, providing further support for Hypothesis 1 (gendered smiling).

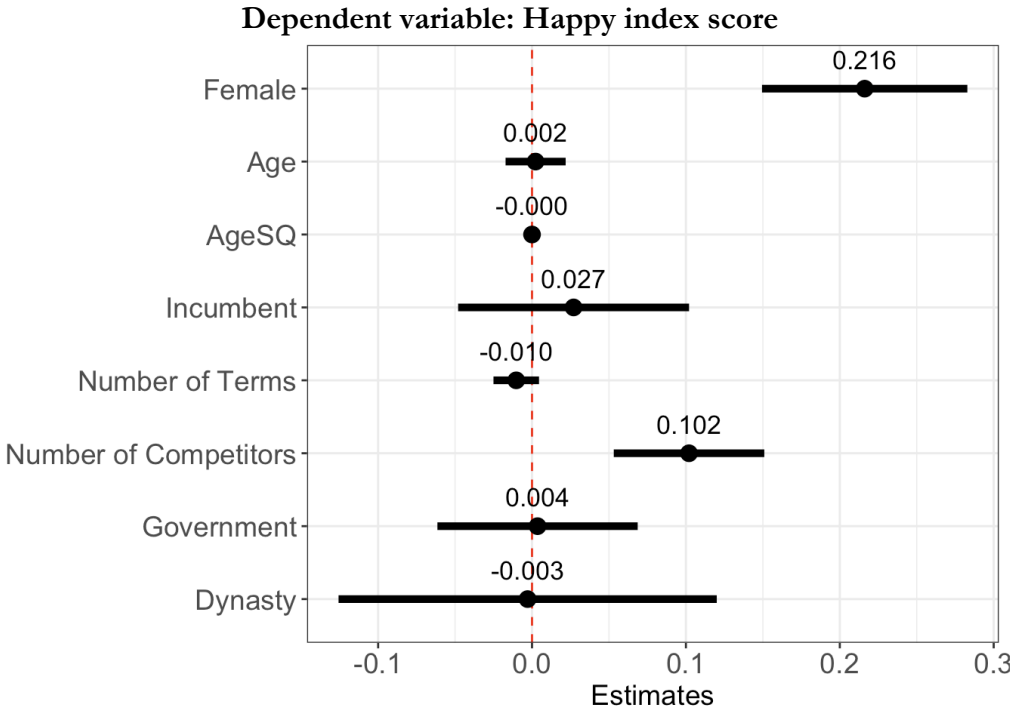


Figure 5: Effects of candidate gender on the candidate's *Happy* score (2024 lower house election)

Note: Dots represent estimated coefficients, and horizontal lines indicate 95% confidence intervals. The model includes electoral-district fixed effects and clusters standard errors at the district level. Coefficients for district fixed effects are omitted from the figure for clarity. For more details, see Appendix 4.

Figure 6 summarizes the results for Hypothesis 2 (electoral returns to smiling). Here, the dependent variable is candidates' vote share, and the main predictors are *Happy*, *Female*, and their interaction (*Happy* × *Female*), with the same set of control variables used in the Happy model; standard errors are clustered by electoral district. Consistent with Study 1, we find that smiling is positively associated with vote share for women, and that this association is stronger for women than for men. Among female candidates, an increase in the happiness score is associated with

higher vote shares, whereas the corresponding association for male candidates is much weaker. The difference between these gender-specific slopes is statistically significant at the 1% level (p = 0.00041), supporting Hypothesis 2. Substantively, these estimates suggest that smiling yields clear electoral benefits for women, whereas the electoral returns to smiling are considerably weaker for men.

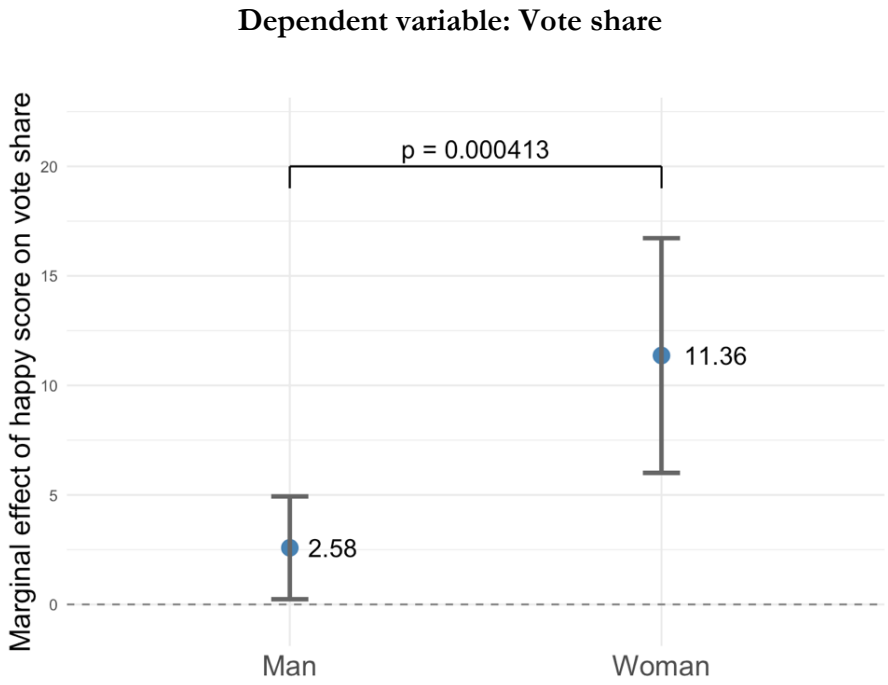


Figure 6: Marginal effects of *Happy* on vote share by candidate gender (2024 lower house election)

Note: Dots show the estimated marginal effects of Happy on vote share for male and female candidates from the baseline poster model (Happy × Female), holding covariates constant. Horizontal bars indicate 95% confidence intervals; standard errors are clustered by electoral district. See Appendix 5 for details.

Overall, the poster results closely mirror the manifesto findings from Study 1. Across two different campaign media (manifestos and posters), two measurement tools (*OKAO Vision* and *FaceReader*), and distinct temporal contexts (1996-2021 and 2024), we observe a consistent pattern: female candidates display higher levels of smiling and receive stronger electoral returns to smiling than male candidates. This pattern is consistent with the argument that gendered expectations of visual self-presentation shape electoral evaluations. In the next subsection, we examine whether

party contexts condition these returns by using the 2024 poster data to explore heterogeneity across parties in the magnitude of these gendered effects.

Party contexts and within-party returns to smiling

Political parties are unlikely to be neutral with respect to candidate behavior and voter responses. Parties differ in the types of candidates they recruit and the constituencies they target. If some parties are both more likely to nominate smiling women and more electorally successful overall, the baseline models in Study 2 may partly capture between-party differences rather than within-party responses to smiling. In other words, unobserved party-level characteristics—such as ideology, gender norms, core electorates, and campaign styles—may simultaneously affect candidates' facial expressions and vote shares, thereby confounding estimates of the gendered effects of smiling. To address this concern, we estimate models with party fixed effects, replacing the governing-party variable, while keeping all other covariates the same. Detailed results are reported in Appendix 3.

We find that, even with party fixed effects, the coefficient on *Female* remains positive and statistically significant in the model where *Happy* is the dependent variable (Table A3-1 in Appendix 3). This suggests that women display higher levels of smiling on their posters than men do, even within the same party, consistent with the manifesto findings from Study 1. Gender differences in smiling therefore do not appear to be driven simply by women and men sorting into different parties.

We next apply the same approach to the vote-share model. The interaction between *Happy* and *Female* remains positive and statistically significant after the inclusion of party fixed effects, although the coefficient decreases in magnitude (see Table A3-2 in Appendix 3). This indicates that the gender gap in the electoral returns to smiling becomes less pronounced once comparisons are restricted to candidates within the same party. The pattern suggests that part of

the stronger association observed in the baseline models reflects systematic differences across parties, including differences in campaign strategies shaped by party ideology and governing status.

To further explore heterogeneity across parties, we estimate two triple-interaction models that allow the *Happy* × *Female* association to vary along two politically salient dimensions: ideology (conservative versus liberal) and government status (governing versus opposition). These dimensions capture differences in party constituencies and campaign strategies that are plausibly linked to gendered expectations of emotional expression. Figure 7 summarizes the marginal effects from these models. Panel A presents estimates from the ideology model, which includes the *Happy* × *Female* × *Conservative* interaction, and compares marginal effects separately for conservative and liberal parties.[7] In both ideological blocs, smiling is associated with a larger increase in vote share for women than for men, but the gender gap is especially pronounced—and statistically significant ($p = 0.0001$)—among conservative parties. Panel B displays estimates from the government-status model, which includes the *Happy* × *Female* × *Government* interaction, and compares marginal effects for governing and opposition parties.[8] We find little evidence of a gender difference in the

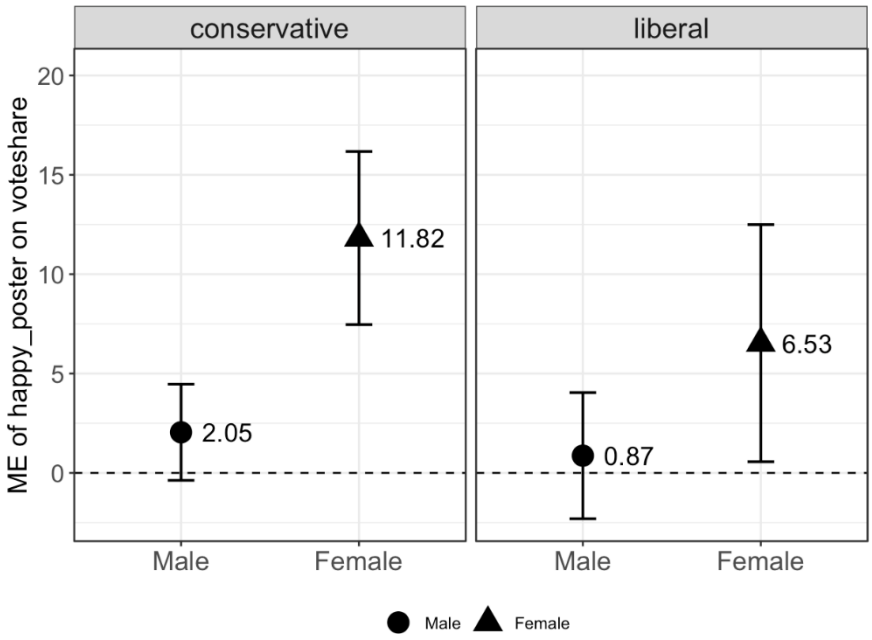
[7] Based on estimates of candidates' ideological positions reported by Taniguchi, et al. (2024, 137), we classify candidates from the Liberal Democratic Party (LDP), Japan Innovation Party (Ishin), Democratic Party for the People (DPP), Sanseito, and Conservative Party of Japan (CPJ) as conservative, and candidates from the Constitutional Democratic Party (CDP), Reiwa Shinsengumi, Komeito, Social Democratic Party (SDP), and Japanese Communist Party (JCP) as liberal. We exclude candidates from minor parties ($n = 16$) and independents ($n = 81$). The resulting analytical sample comprises 1,016 candidates. The conservative–liberal pattern shown in the figure is substantively unchanged under an alternative specification that treats the two intermediate parties (DPP and Komeito) as a separate category.

[8] We likewise exclude candidates affiliated with minor parties and independents.

electoral returns to smiling among governing-party candidates (p = 0.1034). Among opposition candidates, by contrast, the gender gap is statistically significant (p = 0.0034), with smiling translating into higher vote share, particularly for women.

Overall, these results show that the interaction between *Happy* and *Female* varies systematically with party context. At the behavioral level, women are more likely than men to smile in their campaign materials, even within the same parties. At the outcome level, however, the electoral returns to smiling are more context-dependent: on average, women gain more votes from smiling than men do, but this advantage diminishes once we control for party fixed effects and appears to be concentrated in particular party environments. This heterogeneity is consistent with the possibility that parties differ in the candidates they recruit and the constituencies they target, and that these differences shape how voters respond to the smiles of female and male candidates.

Panel A: Ideology



Panel B: Governing status

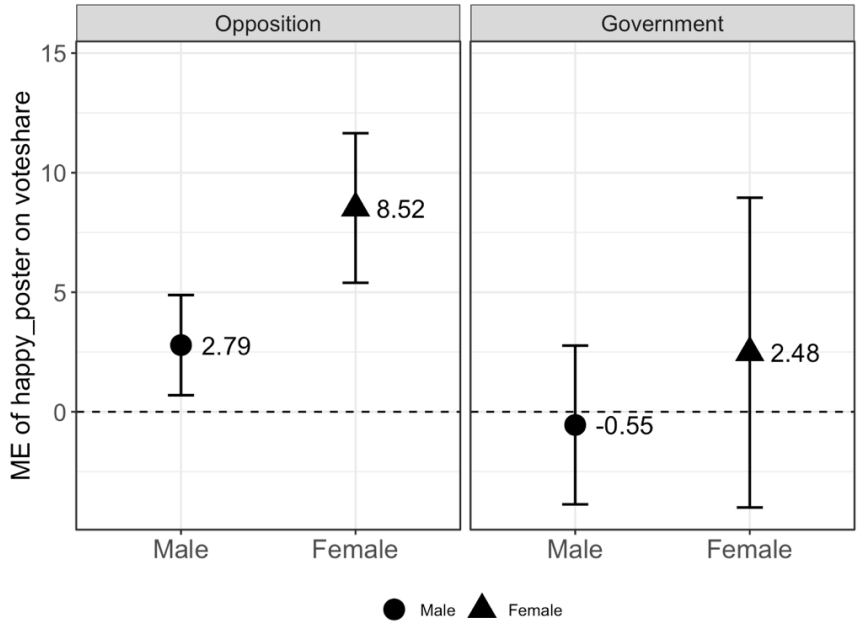


Figure 7: Marginal effects of *Happy* on vote share by candidate gender across party contexts

Note: Dots show the estimated marginal effects of *Happy* on vote share for male and female candidates, computed from the triple-interaction models. Panel A reports estimates by party ideology (conservative vs. liberal) from the Happy × Female × Conservative specification. Panel B reports estimates by government status (governing vs. opposition) from the Happy × Female × Government specification. Horizontal bars indicate 95% confidence intervals; standard errors are clustered by electoral district. Model specifications and full coefficient estimates are reported in Appendix 3.

5. Conclusion

Do gendered expectations influence how candidates present themselves—and how voters evaluate them—during elections? A large body of research shows that voters rely on gender-based stereotypes when forming impressions of candidates, associating men with toughness and agency and women with warmth and communality. These expectations can influence not only what candidates say during campaigns but also how they are evaluated by voters.

This study extends research on gendered campaigning beyond rhetoric to candidates' visual self-presentation. Using automated facial coding of more than 10,000 candidate photographs from Japan's lower house elections—portraits in campaign manifestos from 1996-2021 and campaign posters from 2024—we identify two main patterns. First, women are more likely than

men to display higher levels of smiling in self-presented campaign photographs, even after accounting for candidate characteristics and electoral context. Second, smiling yields gender-asymmetric electoral returns: among women, lower smile intensity is associated with lower vote shares, whereas this relationship is weaker among men. These findings are consistent with the idea that gendered evaluations extend to nonverbal cues and shape how voters interpret the same visual signal.

The results also indicate that the electoral returns to smiling are conditioned by party context. In the 2024 poster data, the gender gap in the returns to smiling attenuates once we include party fixed effects, and triple-interaction models show that the *Happy* × *Female* association varies systematically across party environments, including ideology and government status. This heterogeneity suggests that differences across parties in candidate recruitment, campaign strategies, and targeted electorates may shape how gendered expressive expectations translate into vote shares.

We also find that the estimated gender gap in the electoral returns to smiling is more pronounced in the 2024 poster data than in the long-run manifesto data. This difference may reflect the greater visibility of campaign posters in public spaces during election periods and their greater emphasis on visual design relative to black-and-white printed manifestos. At the same time, this comparison remains tentative because the poster data cover a single election year, whereas the manifesto data span multiple elections over a much longer period. Additional research using poster data from multiple elections would help clarify how media format and campaign environments shape the electoral relevance of facial displays.

Finally, this study underscores the importance of analyzing nonverbal emotional expressions alongside the emotional content of verbal messages. Because our data consist of photographs selected by candidates for campaign use, they capture candidates' curated visual self-presentation rather than images taken by third parties, such as the news media. At the same time, our study is limited because of its focus on static images, even though facial expressions in actual

interactions are dynamic and increasingly communicated through video. Future research should examine how variation in facial expressions in video-based campaigning influences voter evaluations and electoral outcomes. More broadly, examining discrepancies between verbal and visual affective cues may reveal which cues voters prioritize, thereby highlighting the limits of focusing exclusively on verbal emotional expressions and broadening our understanding of candidates' electoral behavior.

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TORONTO POLITICAL BEHAVIOUR WORKSHOP · UNIVERSITY OF TORONTO · NOVEMBER 13–14, 2026

Gendered Smiles in Electoral Campaigns

Candidate Facial Expressions and Electoral Returns

Yoshikuni Ono (Waseda University) · Masahiko Asano (Takushoku University) · Yuya Endo (Waseda University)



ROBUST FINDING / GENDERED SELF-PRESENTATION

Female candidates smile more in campaign photos.

QUALIFIED FINDING / ELECTORAL RETURNS

Women show larger returns from smiling—but context matters.

01 / THE QUESTION

Why might a smile matter?

Candidate-selected photographs shape voter impressions, yet research on gendered campaigning focuses on verbal communication rather than facial expressions.

THEORETICAL EXPECTATION

Gendered visual norms

Men are stereotyped as agentic, tough, and assertive; women as warm, kind, and communal. Because smiling conveys warmth and positive affect, gender norms may affect candidates' photographs and voters' responses.

H1 · GENDERED SMILING

Female candidates display higher smile intensity in campaign photographs than male candidates.

H2 · ELECTORAL RETURNS

The positive smile–vote share association is stronger for female candidates than for male candidates.

SETTING

Japan's lower-house elections

Candidates appear in campaign manifestos and posters on public boards. Both provide wide exposure while allowing them to select portraits. Tokyo installed 14,230 poster boards in 2024.

DATA COVERAGE

Two complementary studies

STUDY 1 · 1996–2021 (9 ELECTIONS)

9,427 portraits 82.0% usable

STUDY 2 · 2024 ELECTION

1,072 posters 79.8% coverage

10,499 candidate-election images in total; some candidates reappear across elections.

02 / DESIGN & MEASUREMENT

Coding facial expressions

Study 1 analyzes grayscale manifesto portraits archived by the National Diet Library using OKAO Vision (0–1 smile index; three scans averaged). **Study 2** analyzes 2024 color campaign posters using FaceReader's 0–1 "Happy" score as a smile proxy.

CONVERGENT MEASUREMENT

r = 0.836 Correlation between the two tools for 2024 images.

RESULT 1 / BOTH STUDIES

Women's portraits smile more

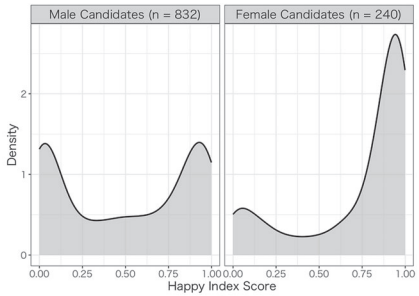
ADJUSTED FEMALE–MALE COEFFICIENT (0–1)

1996–2021 manifestos	+0.256
2024 posters	+0.216

Adjusted for candidate attributes and electoral fixed effects.

VISUAL EVIDENCE / 2024

Smile intensity by gender



DISTRIBUTIONAL PATTERN

Female candidates (n = 240) cluster at high Happy scores, while male candidates (n = 832) show a more dispersed, lower-smiling distribution. This replication supports H1.

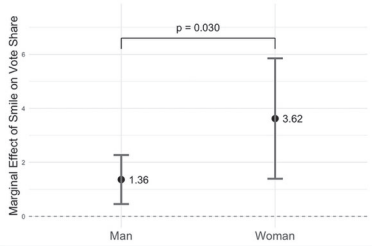
03 / ELECTORAL ASSOCIATIONS

Does smiling predict vote share?

OLS models regress district vote share on Smile, Female, and their interaction, controlling for age, age², incumbency, terms, competitors, governing-party affiliation, dynastic status, and fixed effects. Standard errors are clustered by district.

STUDY 1 · MANIFESTOS, 1996–2021

Baseline association for a full 0 → 1 increase in the smile index:

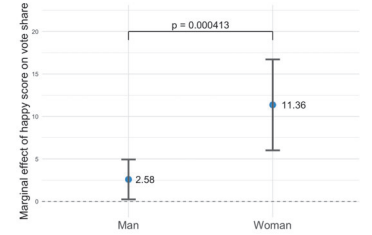


MEN +1.36 pp **WOMEN +3.62 pp**

Smile × Female: $p = .030$

STUDY 2 · CAMPAIGN POSTERS, 2024

Baseline association for a full 0 → 1 increase in the Happy score:



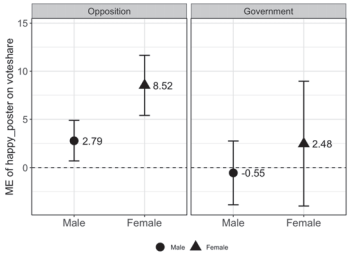
MEN +2.58 pp **WOMEN +11.36 pp**

Smile × Female: $p = .00041$.

04 / HETEROGENEITY

Party context conditions returns

The 2024 data suggest that gender differences in smile–vote associations vary by political context, including ideology and governing status.



Gender gap in the smile association:

Opposition: p = .0034 · Government: p = .1034

Conservative parties: p = .0001 (ideology model)

SENSITIVITY & INFERENCE

What the evidence cannot show

The gender gap in smiling persists with party controls, but the electoral-return gap is less robust. In Study 1, the Smile × Female interaction is insignificant with candidate or party-by-year fixed effects. Party selection and unobserved characteristics may confound this association.

NEXT STEP / PLANNED RANDOMIZED SURVEY

From correlation to a causal test

1 SELECT	Real campaign-poster portraits
2 MANIPULATE	Digitally vary smiles within a face
3 RANDOMIZE	Assign image versions to respondents

Outcomes: candidate impressions, vote intentions, electoral support. Key test: does the causal effect of smiling differ by gender? Experiment not yet fielded.

CENTRAL IMPLICATION

Gendered campaigning takes place in faces as well as words.

NOTES · pp = percentage points. The 0–1 indices are distinct measures across studies.

Selected references: Bauer (2020); Dolan (2014); LaFrance et al. (2003).

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