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ASANO, Masahiko
Takushoku University

ONO, Yoshikuni
RIETI

TENDO, Yuya
Waseda University

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Research Institute of Economy, Trade & Industry, IAA

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The Strategic Smile:

Gendered facial expressions in electoral campaigns[1]

Masahiko Asano
Professor of Political Science,
Takushoku University, Faculty of Political Science and Economics

Yoshikuni Ono
Professor of Political Science
Waseda University, Faculty of Political Science and Economics

Yuya Endo
Junior Researcher
Waseda University, Faculty of Political Science and Economics

Abstract

Voters hold gender-based stereotypes of male and female candidates and often evaluate them on these grounds. This bias extends beyond policy areas to personality traits, with many voters stereotyping male candidates as tough and aggressive while expecting female candidates to be gentle, compassionate, and likable. Existing research indicates that female candidates adopt strategic behaviors during election campaigns, utilizing more positive and less negative emotive language than their male counterparts. This study examined whether these gender differences also manifest in candidates' facial expressions during election campaigns. Our analysis of campaign pictures used by over 10,000 candidates in Japan's national elections from 1996 to 2024 revealed that female candidates smiled more often than their male counterparts. Moreover, female candidates received fewer votes when they did not smile in their campaign photos. These findings suggest that female candidates are strategically motivated to conform to gender-typical behaviors to appeal to voters and avoid electoral backlash.

Keywords: candidates, gender stereotypes, facial expressions, nonverbal communication, electoral outcomes, image analysis

[1] This study is conducted as a part of the Project "Challenges to Achieving a Sustainable Society: Exploring solutions through a social science approach utilizing experiments and data" undertaken at the Research Institute of Economy, Trade and Industry (RIETI).
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Introduction

In electoral politics, both male and female candidates compete for voter support. Their evaluations are often shaped by entrenched gender-based stereotypes (McDermott 1998; Mo 2014). These stereotypes not only influence perceptions of policy preferences but also extend to personal traits (Dolan 2014; Endo and Ono 2023; Huddy and Terkildsen 1993; Koch 2002). For instance, male candidates are often stereotypically perceived as tough and aggressive, whereas female candidates are typically seen as compassionate, kind, and likable (Bauer 2020; Sweet-Cushman 2022). Deviating from these stereotypes may make a female candidate appear more competent (Wang et al. 2023) but can also negatively affect her electoral prospects (Cassese and Holman 2018; Krupnikov and Bauer 2014; Ono and Yamada 2020; Schneider and Bos 2014; Vallejo Vera and Gómez Vidal 2022). Consequently, research indicates that female candidates strategically adjust their behavior in electoral campaigns by avoiding language that expresses negative emotions—which may provoke an electoral backlash from voters—and using language that conveys positive emotions more frequently than their male counterparts (Barnes et al. 2022; Boussalis et al. 2021).

Candidates' communication with voters during campaigns extends beyond verbal messages such as 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). Existing research suggests that these visual cues, including physical appearance, significantly affect voter perceptions and electoral outcomes (Ahler et al. 2017; Druckman 2003; Rosenberg and McCafferty 1987). Recognizing the electoral importance of their appearance, many candidates strive to draw voters' attention by actively featuring their own portraits in campaign materials. Some studies highlight the electoral benefits of facial attractiveness (Berggren et al. 2010; King and Leigh 2009; Praino and Stockemer 2018; Rosar et al. 2008), while others focus on the effect of facial expressions, particularly smiles, suggesting

that candidates who smile in photographs are more likely to receive a higher percentage of the vote (Asao and Patterson 2018; Horiuchi et al. 2012; Rosenberg et al. 1986). However, the role of gender in moderating the electoral impact of these nonverbal cues has been largely overlooked.[1] One notable exception is an experimental study by Bauer and Carpinella (2017), which showed that visual information incongruent with gender stereotypes can shape candidate evaluations. However, the study focused on images and visual symbols that evoke feminine or masculine traits (e.g., photographs of children and soldiers) rather than on candidates' appearance. In this study, we examine whether gender differences in candidates' facial expressions—consistent with voter stereotypes—are evident in campaign photographs and how these differences may influence electoral outcomes.

Although one might expect candidates to universally smile in campaign imagery if such expressions are so crucial, in practice, campaign photographs feature a broad spectrum of facial expressions. In Japan, for example, many candidates for national office opt for calm or serious expressions (see Tsai et al. 2016). We hypothesize that if candidates act strategically rather than simply reflecting social norms, female candidates will be more likely to smile in their photographs than their male counterparts, and those who do not are likely to experience a decline in voter support. To test our hypotheses, we employed facial coding software to analyze the facial expressions in more than 9,500 campaign photographs used during Japanese national elections over twenty-five years (1996 to 2021), along with the corresponding electoral outcomes. The consistent manner in which candidates present their faces in campaign materials in the

[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 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.

context of Japan's electoral institutions and cultural norms provides a unique testing ground for our hypotheses.

Our analysis reveals that even after controlling for factors such as age and incumbency status, a statistically significant gender difference persisted in the facial expressions depicted in campaign photographs. Specifically, female candidates were more likely than male ones to present positive, smiling images to voters. Furthermore, a significant gender disparity emerged in how these expressions correlated with electoral success. While the correlations for male candidates were minimal, we observed stronger and more positive correlations for female candidates: the greater the extent of their smiling, the higher the vote share they received. This finding supports the hypothesis that female candidates strategically use smiling in campaign photographs and are penalized by voters when they do not smile, which suggests that their choices are driven by electoral considerations rather than the mere drive to conform to social expectations. In other words, facial expressions are identified as a form of strategic behavior in political campaigns.

This study advances research on nonverbal communication and gender dynamics in electoral politics by extending the analysis of gendered candidate behavior beyond verbal messaging to include visual and emotional self-presentation—specifically, facial expressions in campaign photographs. Prior research has predominantly focused on verbal communications such as speeches and manifestos, paying comparatively less attention to nonverbal visual cues. Although some studies have reported that features such as attractiveness and smiling can influence voter perceptions, the strategic manipulation of these visual cues by candidates to enhance electoral appeal remains understudied. The present study provides robust empirical evidence that facial expressions are not only electorally consequential but also strategically employed by candidates, particularly in gendered contexts. This demonstrates that campaign strategies are shaped by gendered expectations that constrain how candidates present themselves. Our findings imply that candidates' behavioral adjustments to counteract gender stereotypes extend beyond speech and rhetoric and also manifest in their facial expressions in campaign photographs. This underscores

the need for additional research on how gender intersects with strategic behavior in electoral contexts.

Facial expressions in campaign photos: A political strategy

Candidates recognize that their appearance in campaign materials is crucial because many voters rely on these materials as one of the primary cues for evaluating candidates (Lau and Redlawsk 2011). Moreover, voters often form rapid judgments based on visual cues (Ambady and Rosenthal 1992; Ballew and Todorov 2007; Olivola and Todorov 2010). As a result, candidates have a strong incentive to manipulate not only their messages to constituents but also their visual presentation on election posters and other campaign materials. For instance, some candidates may alter their portraits to appear younger, such as by darkening gray hair or reducing wrinkles (Kohno and Sakurai 2020). One particularly effective and straightforward manipulation that candidates can employ is facial expressions. Facial expressions allow candidates to convey their emotions to voters (Ekman 1993; Horstmann 2003), and the facial expressions displayed in campaign materials have the potential to evoke emotional responses in voters (Sagliano et al. 2022; Senior et al. 2024).

Research on the expression of emotions reveals that emotions are not uniformly displayed by everyone in identical situations. Significant disparities in expressiveness exist between men and women. Specifically, research suggests that women are more expressive than men (Brody, 1999; Hess et al., 2000; Kring & Gordon, 1998). Facial expressions, particularly smiles, are widely recognized cues that convey positive emotions (Ekman et al. 1990; Ekman and Friesen 1982; Ekman et al. 1980). Studies consistently show that women tend to smile more than men (Briton and Hall 1995; Hall and Halberstadt 1986; LaFrance and Hecht 1999). A meta-analysis of over 400 studies by LaFrance et al. (2003) found that gender differences in smiling are more pronounced when behavior is monitored and evaluated, and even more so when the task involves persuading others. This is particularly relevant in elections, where candidates must

persuade voters to support them through their campaign efforts. This leads to our first hypothesis, which concerns the use of facial expressions among electoral candidates in their campaign materials:

Hypothesis 1: Female candidates are more likely to exhibit greater smiles in their campaign photos than their male counterparts.

The gender differences in smiling are not solely a result of socialization. While a meta-analysis of experimental research indicates that voters tend to have a positive bias toward female candidates (Schwarz and Coppock 2022), there is also evidence that voters may penalize female candidates who deviate from gender-stereotypical behavior (Bauer 2020; Ono and Yamada 2020). An analysis of sentiments in tweets posted by electoral candidates in the UK revealed that female candidates are less likely to express negative sentiments in their messages than male candidates; moreover, female candidates receive more replies with negative sentiments when they convey negativity in their messages (Barnes et al. 2022). Given that political candidates are strategic actors seeking to maximize voter support, female candidates are likely to strategically avoid negative voter reactions. If smiling is a strategic choice to sidestep voter backlash, the absence of smiles in campaign materials could result in electoral penalties for female candidates. This leads to our second hypothesis, which addresses the effect of candidates' facial expressions on electoral outcomes:

Hypothesis 2: Compared to their male counterparts, female candidates are more likely to gain more votes when they smile in their campaign photos and more likely to lose votes when they fail to do so.

We tested these hypotheses using campaign materials from Japanese lower house elections. These elections provide a useful case because voters cast ballots for individual candidates rather than for political parties in single-member districts, and many candidates

prominently display their faces on campaign materials. In national elections in Japan, voters are exposed to candidates and their photos through two primary channels before voting: campaign posters and manifestos. Campaign posters are displayed at polling stations and on designated poster boards placed by the Election Commission in each district. In contrast, campaign manifestos are printed and delivered to each household by the Election Commission before election day. The visibility of candidate photos in these materials is substantial during the campaign period and likely influences voter decisions.

Data and methodology

To test our hypotheses, we collected campaign manifestos from all candidates who ran in nine lower house elections between 1996 and 2021.[2] We then digitized the candidates' photographs in these manifestos. Table 1 presents the number of winners, the total number of candidates, and the subset displaying their portraits in the manifestos for each election. As indicated in this table, a total of 11,497 candidates contested these elections, 9,467 of whom (82.3 per cent) had portrait photos of sufficient quality for analysis.[3] One key advantage of using campaign manifestos, which are archived in the National Diet Library, is their continued availability, whereas campaign posters are typically discarded immediately after elections and can only be acquired directly from

[2] 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.

[3] 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 left us with a robust dataset of 9,467 facial photographs for rigorous statistical evaluation. Importantly, the number 9,467 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.

candidates (unless they are photographed during the campaign period). This archival access ensures a comprehensive dataset and mitigates the risk of selection bias, a common concern given the ephemeral nature of campaign posters.

Table 1: Winners, candidates, and portrait inclusions in election manifestos (1996–2021)

Election year	Number of winners	Number of candidates	Number of candidates with portraits
1996	500	1,503	1,223
2000	480	1,404	1,199
2003	480	1,159	1,025
2005	480	1,131	965
2009	480	1,374	1,061
2012	480	1,504	1,247
2014	475	1,191	956
2017	465	1,180	934
2021	465	1,051	857
Total	4,305	11,497	9,467

For our analysis, we utilized OKAO Vision, a facial recognition software developed by Omron Corporation, which was also used by Horiuchi et al. (2012) to analyze candidate portraits. We employed this software to objectively assess the facial expressions of candidates in their manifestos.[4] OKAO Vision quantifies the extent of a candidate's smile on a continuous scale of 0 (no smile) to 1 (full smile). This index is based on mathematical approaches that describe human facial contours (see Bookstein 1991; Lestral 1997; Viola and Jones 2004). Employing a Bayesian statistical approach, the software generates a posterior distribution of

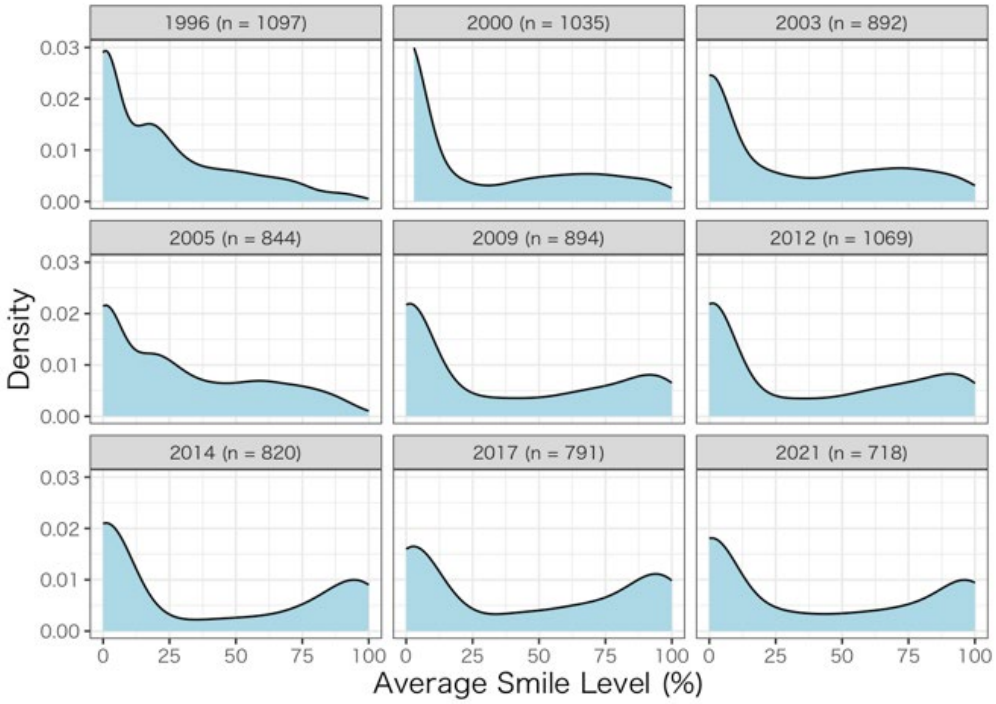
[4] For more information on the software, see the Omron Corporation website at https://components.omron.com/us-en/products/sensors/human-image-solution/software-library/software-library (accessed on April 14, 2025).

smiling scores.[5] The measurement procedure consisted of three steps: (1) scanning each candidate's photograph using OKAO Vision, (2) identifying the candidate's gender, and (3) calculating the smile index. We repeated this process three times per candidate to create an average smiling score, addressing any minor blurring that arose during image capture in OKAO Vision.

Figure 1 displays histograms depicting the distribution of smile levels among candidates across various election years, separately by gender. The horizontal axis represents the smile index score, which ranges from 0 to 1, while the vertical axis indicates the relative frequency density. As shown in this figure, not all candidates used smiling portraits in their campaign manifestos. Although the use of smiling photos in campaign manifestos has increased noticeably in recent years, variations in the extent of smiling persist among candidates. Importantly, there is a distinct pattern in the smile levels of male and female candidates: Many male candidates tend to feature portraits with lower smile scores, whereas female candidates generally use portrait photographs with higher smile scores. This observation seems to align with Hypothesis 1. However, the apparent gender differences in facial expressions in campaign photographs may also be influenced by factors other than gender, such as the general tendency for female candidates to be younger than their male counterparts. Therefore, it is essential to control for these compounding factors to test the hypotheses.

[5] For more technical details, see Horiuchi et al. (2012).

Male candidates (Panel A)



Female candidates (Panel B)

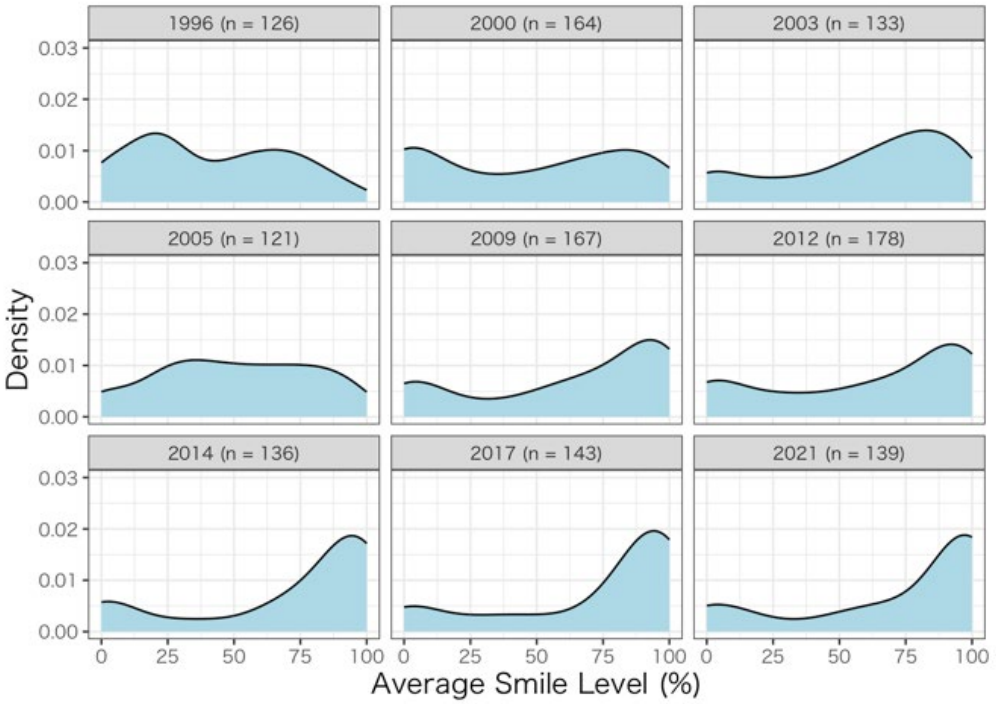


Figure 1: Distributions of smile levels in campaign manifestos by candidate gender

Note: The horizontal axis shows the smile index score, while the vertical axis indicates the relative frequency density among candidates. The number in parentheses in each panel denotes the total number of candidates in the dataset for each election year from 1996 to 2021.

Results of the empirical analyses

To test Hypothesis 1, we conducted an ordinary least squares regression analysis in which the dependent variable was the candidate's facial smile index score (*Smile*) and the principal independent variable was candidate gender (*Female*), coded as 1 for women and 0 for men.[6] We controlled for a range of candidate characteristics, including age (*Age*) and its squared term (*AgeSQ*) to capture potential nonlinear effects, incumbency status (*Incumbent* = 1 if the candidate was an incumbent, 0 otherwise), the number of terms the candidate had 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 was affiliated with the ruling party, 0 otherwise), and dynastic status (*Dynasty* = 1 if the candidate belonged to a political family with a strong support base, and 0 otherwise). We also included dummy variables for election years and electoral districts. Standard errors were clustered by individual candidate.

Table 2: Summary statistics for variables in the model (1996–2021 lower house elections)

Variable	*N*	Mean	*SD*	Min	Max
Smile	9,467	0.358	0.374	0	1
Female	9,467	0.138	0.345	0	1
Age	9,467	51.184	11.099	25	89
AgeSQ	9,467	2,743.02	1,142.26	625	7,921
Incumbent	9,467	0.365	0.482	0	1
Number of terms	9,467	1.478	2.457	0	19
Number of competitors	9,467	3.885	1.082	2	9
Government	9,467	0.280	0.449	0	1
Dynasty	9,467	0.114	0.318	0	1

[6] We rely primarily on ordinary least squares (OLS) because it is straightforward to interpret. Although beta regression models are more suitable when the dependent variable is bounded between 0 and 1 (Smithson and Verkuilen 2006), robustness checks with these models yield results consistent with the OLS estimates. This consistency supports the validity of our findings. Details are provided in Appendix 6.

Table 2 presents the summary statistics for these variables in the model. The smile index had a mean score of 0.358, ranging from 0 to 1 across 9,467 candidate faces, indicating that candidates generally adopted a more serious demeanor in campaign photos. During the lower house elections between 1996 and 2021, 13.8 per cent of candidates were women, and 36.5 per cent were incumbents. The candidates' ages ranged from 25 to 89, with an average age of 51.19. Additionally, 33.8 per cent of the candidates were affiliated with the ruling party.

Figure 2 displays the coefficient estimates and their 95 per cent confidence intervals, where standard errors were clustered by individual candidate. The dependent variable was the smile index score. As predicted, the analysis revealed significant gender differences in facial expressions in campaign manifestos; specifically, a candidate's gender had a positive and statistically significant effect on their facial smile index, which was 0.254 points higher for female candidates. This finding suggests that female candidates were more likely to choose portraits with higher degrees of smiling for their election campaign manifestos than their male counterparts. This pattern holds even when accounting for various confounding factors, such as age, tenure in office, incumbency status, governing party affiliation, number of competitors, and dynastic family status. Thus, Hypothesis 1—that female candidates exhibit greater smiles in their campaign photos—was supported. Although the effect of dynastic family status on the smile index was negative, it was not statistically significant. The detailed results can be found in Appendix 1.

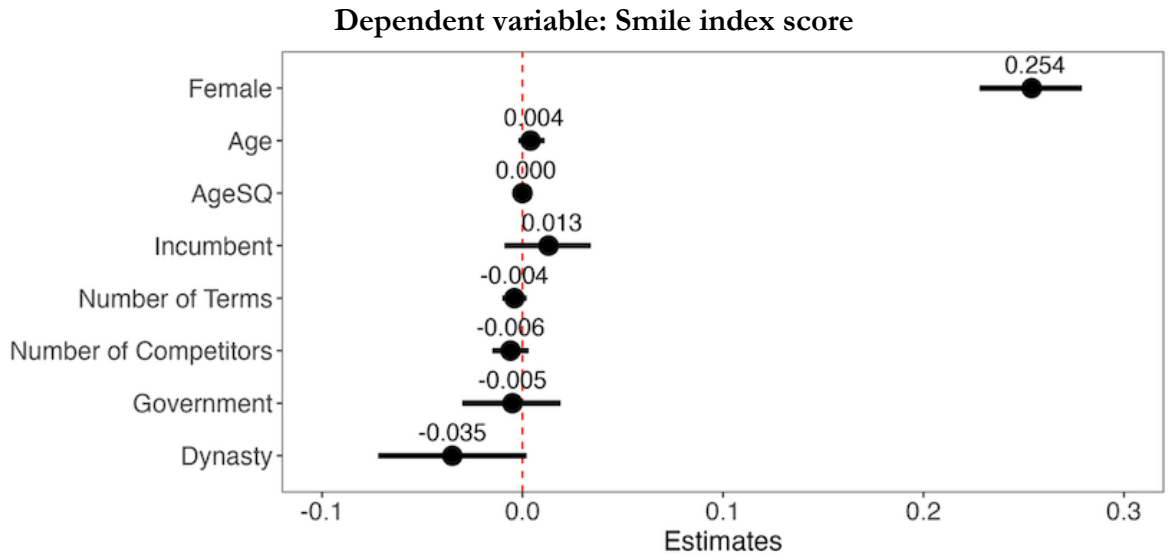


Figure 2: Effects of candidate attributes on smile scores (1996–2021 lower house elections)

Note: Dots represent estimated coefficients, and horizontal lines indicate 95 per cent confidence intervals, where standard errors are clustered by individual candidate. Coefficients for the election year and electoral district dummy variables are omitted from the figure for clarity.

To test Hypothesis 2—that female candidates choose smiling photos not merely due to social conditioning but as a deliberate electoral strategy—we explored how smiling in photos influenced the votes the candidates received. We employed an OLS regression model with candidates' vote share in their electoral districts as the dependent variable, shifting the focus from the smile index score. The vote share had a mean score of 27.80, ranging from 0.1 to 95.3, with a standard deviation of 19.3. The independent variables included the candidate's smile index score and gender and the interaction term between these two factors. The model also retained the candidate attributes used in the analysis of Hypothesis 1 as control variables. Standard errors were clustered by electoral district. The detailed results are presented in Appendix 2.

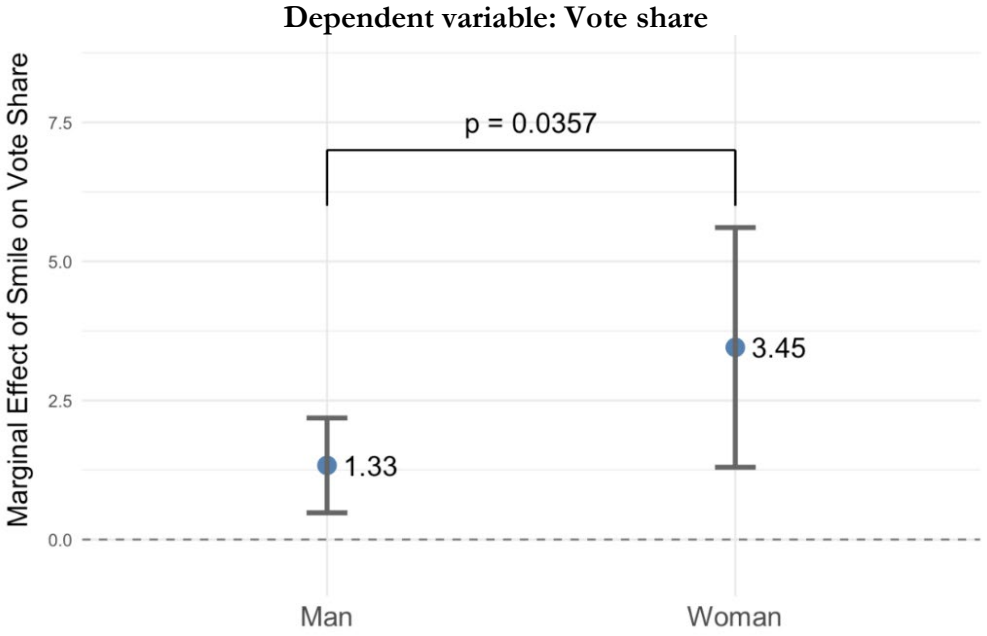


Figure 3: Marginal effects of smile score on vote share by candidate gender (1996–2021 lower house elections)

Note: Dots represent the estimated marginal effects of the smile index score, and horizontal lines indicate 95 per cent confidence intervals, where standard errors are clustered by individual candidate.

Figure 3 depicts the marginal effects of smile scores on vote shares segmented by candidate gender. The analysis revealed a positive correlation between vote share and smile scores for both male and female candidates. This finding aligns with the findings of Horiuchi et al. (2012), who employed the same measurement tool to analyze photographs of national candidates in Japan (672 candidates) and Australia (286 candidates). More importantly, our results demonstrate gender differences in the electoral impact of smiling in campaign portraits: Smiling increased the vote share for female candidates by 2.12 percentage points more than for male candidates, a difference that was statistically significant at the 5 per cent level ($p = 0.0357$). Thus, female candidates gained a larger electoral benefit from smiling in their campaign photos than their male counterparts did, supporting Hypothesis 2. This finding suggests that female candidates' use of smiling portraits in their campaign materials extends beyond social expectations to a strategic choice aimed at enhancing voter support.

Robustness check based on campaign posters

To assess the robustness of our findings regarding gender differences, which relied on candidate portraits appearing in campaign manifestos between 1996 and 2021, we expanded our dataset to include campaign posters used by individual candidates during the 2024 lower house election. We analyzed the facial expressions in the candidate portraits featured on these posters. As noted earlier, candidates are permitted to display their posters in designated spaces on public poster boards, which are provided by municipal election commissions in each electoral district. We collected poster images for 1,074 of the 1,344 candidates who participated in the election, achieving a coverage rate of 79.8 per cent. To further validate our findings using alternative measures, we evaluated each candidate's facial expression using FaceReader, an automated facial coding software developed by Noldus Information Technology. This software employs the Facial Action Coding System to analyze emotions in facial images based on facial muscle observations (Ekman 1978).

FaceReader is used in psychology and calculates the intensity scores of the facial expressions it identifies in seven emotional categories: happy, sad, angry, surprised, scared, disgusted, and neutral. In line with prior research, we focused on the happiness score (*Happy*), which ranges from 0 to 1, as an indicator of smile intensity (see Obayashi et al. 2024). The happiness score was determined based on observations of Action Units 6 (AU6: cheek raising) and 12 (AU12: lip corner pulling). Figure 4 presents a histogram depicting the distribution of smile intensity levels among the 1,074 candidates, with an average happy index score of 0.549. Notably, this distribution pattern closely mirrors those observed in the campaign manifestos in Figure 1, supporting the robustness of our findings across multiple data sources and measurement tools.

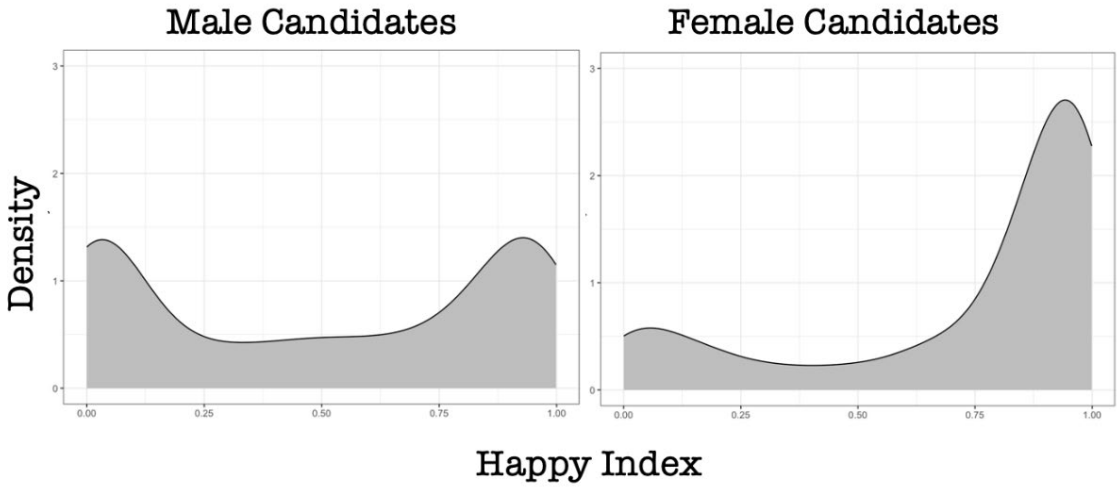


Figure 4: Distributions of smile levels on campaign posters by candidate gender (2024 lower house election)

Note: The horizontal axis represents the smile index score, while the vertical axis indicates the relative frequency density among candidates in the 2024 lower house election.

We conducted the same analyses for both Hypotheses 1 and 2. The summary statistics for the variables included in the regression models are detailed in Appendix 3. The results are presented in Figures 5 and 6, respectively. Our analyses revealed that even after controlling for all other variables, female candidates consistently displayed significantly greater smiling on their campaign posters than their male counterparts. Specifically, gender had a positive and statistically significant effect on the happiness index scores, with female candidates obtaining 0.215 points more than male ones, thereby supporting Hypothesis 1. Furthermore, an increase in the happiness index for female candidates correlated with an increase in their vote share, an effect not observed among male candidates. The difference in effects between genders, which was statistically significant at the 1 per cent level ($p = 0.000$), thus supported Hypothesis 2. These findings imply that female candidates are likely to lose votes if they do not smile on their campaign posters.

These results are consistent with observations from campaign manifestos spanning multiple election cycles and employing various measurement approaches, which confirms the

predictions of Hypotheses 1 and 2. This consistency underscores the robustness of our findings regarding gender differences in facial expressions and their impact on electoral outcomes, pointing to strategic variations in the use of candidate portraits between genders.

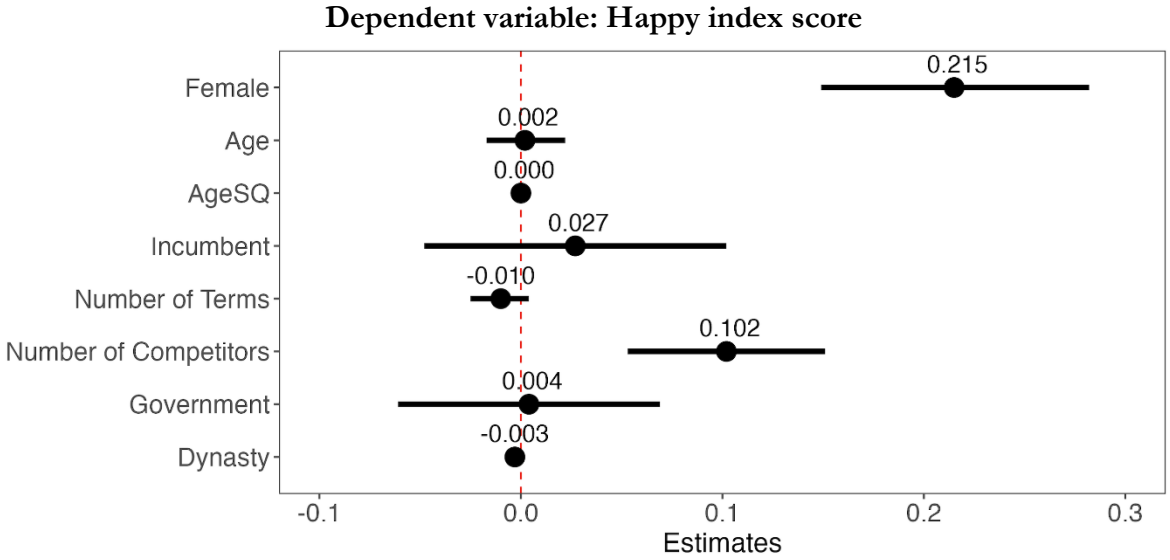


Figure 5: Effects of candidate gender on the candidate's happy index score (2024 lower house election)

Note: Dots represent estimated coefficients, and horizontal lines indicate 95 per cent confidence intervals. To account for electoral district effects and obtain more reliable estimates, the model incorporates electoral district dummy variables as fixed effects and clusters standard errors at the district level. Coefficients for electoral district dummy variables are omitted from the figure for clarity. For more details, see Appendix 4.

Dependent variable: Vote share

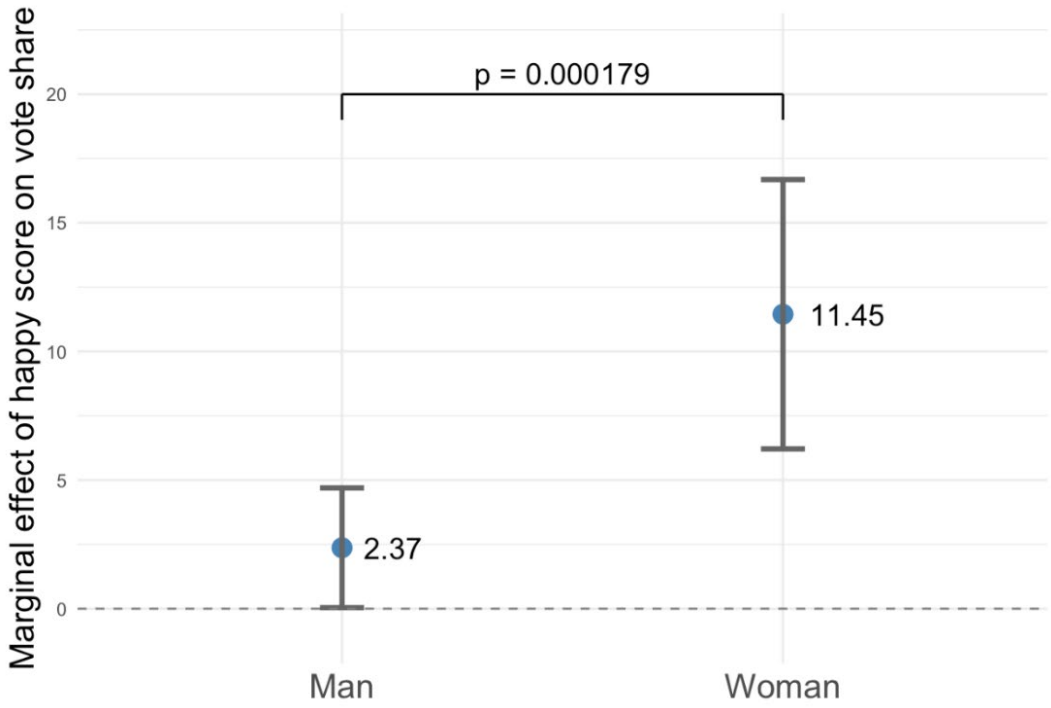


Figure 6: Marginal effects of happy score on vote share by gender (2024 lower house election)

Note: Dots represent the estimated marginal effects of the smile index score, and horizontal lines indicate 95 per cent confidence intervals, where standard errors are clustered by electoral district. See Appendix 5 for details.

Conclusion

Are female candidates required to adopt different behaviors than male candidates to succeed in elections? Voters hold gender-based stereotypes that influence their evaluations of candidates significantly during the electoral process. For instance, while male candidates are often expected to appear tough and aggressive, female candidates are expected to be compassionate, kind, and likable. These gender-based stereotypes—whether conscious or unconscious—may compel candidates to modify their behavior in line with these expectations. Previous research suggests that female candidates strategically modulate their campaign language to minimize negative emotional expressions and amplify positive ones compared to their male counterparts. However,

campaign communication encompasses more than words; visual elements—particularly facial expressions—play a pivotal role. In this study, we analyzed over 10,000 facial photographs from real election campaigns to explore gender differences in candidates' electoral behaviors and the factors influencing these differences.

Our analysis revealed that female candidates were significantly more likely to select smiling portraits for their campaigns than their male counterparts, even when controlling for factors such as incumbency status, age, number of past wins, and ruling party affiliation. Furthermore, while the correlation between smile intensity and electoral support was weak for male candidates, it was significantly positive for female candidates. This suggests that female candidates who visibly smile tend to attract more votes, whereas those who deviate from gender-stereotypical expectations risk voter penalties. These findings imply that voters evaluate female candidates based on gender stereotypes not only in their verbal statements but also in their visual presentation.

Importantly, we found larger gender disparities in the electoral effects of campaign posters than in those of campaign manifestos. One possible explanation is that campaign posters receive higher visibility in public spaces during the election period and often use vibrant designs, unlike the black-and-white printed manifestos. However, it should be noted that the campaign posters in our dataset covered only the 2024 lower house election, whereas the campaign manifestos encompassed a broader range of candidates over the extended period from 1996 to 2021. Hence, further research on campaign posters would help clarify these dynamics.

Finally, unlike existing research that predominantly focuses on the emotional content embedded in verbal messages, this study concentrated on the emotions conveyed by candidates' facial expressions. Our approach is distinctive because we analyzed photographs selected by the candidates themselves for their campaigns rather than images captured by third parties such as the media. This allowed us to infer the candidates' strategic intentions and incentives. However,

our study is limited by its focus on static images of facial expressions given that these expressions can vary in motion dynamically. With the increasing use of video in campaigns, future research should examine how changes in facial expressions in videos affect electoral outcomes. Moreover, potential discrepancies between verbal and visual emotional cues open avenues for exploring which cues voters prioritize. Examining these discrepancies could highlight the limitations and challenges of focusing exclusively on verbal emotional expressions and broaden our understanding of candidates' electoral behaviors.

Competing Interests Declaration

The authors declare that there are no competing interests with respect to the research, authorship, or publication of this article.

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Online Appendix

Appendix 1: Coefficient estimates (1996-2021 lower house elections)

Dependent variable: Smile index score

	Estimate	Std. Error	t value	Pr(>|t|)
Female	0.254	0.013	19.659	1.048E-74
Age	0.004	0.003	1.396	0.163
AgeSQ	0.000	0.000	-1.422	0.155
Incumbent	0.013	0.011	1.119	0.263
Number of terms	-0.004	0.003	-1.328	0.184
Number of competitors	-0.006	0.005	-1.325	0.185
Government	-0.005	0.012	-0.415	0.678
Dynasty	-0.035	0.019	-1.875	0.061

Number of observations: 9,467

Note: Standard errors are clustered by individual candidate. The results for electoral district and election year dummies, which were included in the model as fixed effects, are not displayed.

Appendix 2: Coefficient estimates (1996-2021 lower house elections)

Dependent Variable: Vote Share

	Estimate	Std. Error	t value	Pr(>|t|)
Smile	1.332	0.434	3.067	0.002
Female	-3.624	0.684	-5.295	0.000
Smile x Female	2.121	1.010	2.101	0.036
Age	0.791	0.111	7.153	0.000
AgeSQ	-0.010	0.001	-9.511	0.000
Incumbent	11.191	0.425	26.302	0.000
Number of terms	2.408	0.104	23.084	0.000
Number of competitors	-3.584	0.159	-22.564	0.000
Government	12.281	0.412	29.809	0.000
Dynasty	5.537	0.656	8.438	0.000
Smile x Female	2.121	1.010	2.101	0.036

Number of observations: 9,467

Note: Standard errors are clustered by individual candidate. The results for electoral district and election year dummies, which were included in the model as fixed effects, are not displayed.

Appendix 3: Summary statistics for variables in the model (2024 lower house election)

Variables	N	Mean	St. Dev.	Min	Max
Happy	1,074	0.549	0.391	0	0.999
Female	1,074	0.223	0.416	0	1
Age	1,074	54.079	11.755	25	84
AgeSQ	1,074	3,062.60	1,279.79	625	7,056
Incumbent	1,074	0.36	0.48	0	1
Number of terms	1,074	1.74	2.805	0	18
Number of competitors	1,074	4.186	1.21	2	9
Government	1,074	0.256	0.437	0	1
Dynasty	1,074	0.064	0.245	0	1

Number of observations: 1,074

Note: Standard errors are clustered by individual candidate. The results for electoral district, which were included in the model as fixed effects, are not displayed.

Appendix 4: Coefficient estimates (2024 Lower House Election)

Dependent variable: Happy index score

	Estimate	Std. Error	t value	Pr(>|t|)
Female	0.215	0.034	6.339	0.000
Age	0.002	0.010	0.241	0.810
AgeSQ	0.000	0.000	-0.080	0.937
Incumbent	0.027	0.038	0.701	0.484
Number of terms	-0.010	0.008	-1.385	0.167
Number of competitors	0.102	0.025	4.125	0.000
Government	0.004	0.033	0.124	0.901
Dynasty	-0.003	0.062	-0.043	0.966

Number of observations: 1,074

Note: To account for electoral district effects and obtain more reliable estimates, the model includes electoral districts as fixed effects and clusters standard errors at the district level. Coefficients for electoral district dummy variables are not displayed.

Appendix 5: Coefficient estimates (2024 lower house election)

Dependent variable: Vote share				
	Estimate	Std. Error	t value	Pr(>|t|)
Happy	2.368	1.188	1.993	0.047
Female	-7.114	1.503	-4.733	0.000
Happy x Female	9.079	2.391	3.797	0.000
Age	1.389	0.296	4.687	0.000
AgeSQ	-0.015	0.003	-5.494	0.000
Incumbent	15.811	1.376	11.487	0.000
Number of terms	2.288	0.254	8.998	0.000
Number of competitors	0.811	0.855	0.949	0.343
Government	2.860	0.935	3.059	0.002
Dynasty	0.126	1.854	0.068	0.946

Number of observations: 1,074

Note: To account for electoral district effects and obtain more reliable estimates, the model includes electoral districts as fixed effects and clusters standard errors at the district level. Coefficients for electoral district dummy variables are not displayed.

Appendix 6

Appendix 6-1: Coefficient estimates (Beta regression)
(1996-2021 lower house elections)
Dependent variable: Smile index score

	Estimate	Std. Error	z value	Pr(>|z|)
Female	0.892	0.047	18.857	0.000
Age	0.022	0.010	2.179	0.029
AgeSQ	0.000	0.000	-2.133	0.033
Incumbent	0.035	0.036	0.983	0.326
Number of terms	-0.005	0.010	-0.522	0.601
Number of competitors	-0.012	0.015	-0.798	0.425
Government	-0.003	0.040	-0.071	0.943
Dynasty	-0.118	0.058	-2.027	0.043

Number of observations: 9,467

Note: The estimate represents the effect on the logit of the mean, expressed in log-odds. Beta regression assumes that the dependent variable lies strictly within the open interval (0, 1). Because the smile index score contains values equal to 0 or 1, these were transformed into the (0, 1) interval using the adjustment proposed by Smithson and Verkuilen (2006). Results for electoral district and election year dummies, which were included as fixed effects, are not reported. Standard errors are clustered by individual candidate and computed using the CR2 method.

Appendix 6-2: Coefficient estimates (Beta regression)
(1996-2021 lower house elections)
Dependent variable: Vote share

	Estimate	Std.Error	z value	Pr(>|z|)
Smile	0.109	0.023	4.747	0.000
Female	-0.195	0.043	-4.519	0.000
Smile x Female	0.134	0.060	2.218	0.027
Age	0.043	0.006	7.092	0.000
AgeSQ	-0.001	0.000	-9.261	0.000
Incumbent	0.655	0.021	31.742	0.000
Number of terms	0.107	0.005	22.477	0.000
Number of competitors	-0.228	0.009	-26.130	0.000
Government	0.250	0.029	8.506	0.000
Dynasty	0.614	0.020	31.528	0.000

Number of observations: 9,467

Note: The estimate represents the effect on the logit of the mean, expressed in log-odds. Confidence intervals are obtained by bootstrapping based on CR2 standard errors, which are clustered by individual candidate. Results for electoral district and election year dummies, included as fixed effects, are not reported.

Appendix 6-3: Coefficient estimates (Beta regression)
(2024 lower house election)
Dependent variable: Happy index score

	Estimate	Std.Error	z value	Pr(>|z|)
Female	0.805	0.116	6.914	0.000
Age	0.031	0.036	0.847	0.397
AgeSQ	0.000	0.000	-0.656	0.512
Incumbent	0.112	0.118	0.949	0.343
Number of terms	-0.037	0.023	-1.616	0.106
Number of competitors	0.592	0.083	7.154	0.000
Government	0.077	0.103	0.749	0.454
Dynasty	-0.018	0.199	-0.092	0.927

Number of observations: 1,074

Note: The estimate represents the effect on the logit of the mean, expressed in log-odds. Beta regression assumes that the dependent variable lies strictly within the open interval (0, 1). Because the Happy index score includes values equal to 0 or 1, we transformed them into the (0, 1) interval using the adjustment proposed by Smithson and Verkuilen (2006). Results for electoral district, included as fixed effects, are not reported. Standard errors are clustered by electoral district and computed using the CR2 method.

Appendix 6-4 Coefficient estimates (Beta regression)
(2024 lower house election)
Dependent variable: Vote share

	Estimate	Std.Error	z value	Pr(>|z|)
Happy	0.165	0.064	2.576	0.010
Female	-0.418	0.102	-4.085	0.000
Happy x Female	0.552	0.149	3.713	0.000
Age	0.853	0.066	12.841	0.000
AgeSQ	0.093	0.017	5.583	0.000
Incumbent	-0.001	0.000	-6.502	0.000
Number of terms	0.121	0.012	9.935	0.000
Number of competitors	-0.023	0.050	-0.455	0.649
Government	0.165	0.064	2.576	0.010
Dynasty	-0.418	0.102	-4.085	0.000

Number of observations: 1,074

Note: The estimate represents the effect on the logit of the mean, expressed in log-odds. To account for electoral district effects, the model includes electoral district dummies as fixed effects. Beta regression assumes that the dependent variable lies strictly within the open interval (0, 1). Because the Happy index score contains values equal to 0 and 1, these were transformed into the (0, 1) interval using the adjustment proposed by Smithson and Verkuilen (2006). Results for the electoral district dummies are not reported. Standard errors are clustered by individual candidate and computed using the CR2 method.