



Too Young to Run? Voter Evaluations of the Age of Candidates

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Abstract

Why do elected officials tend to be much older than most of their constituents? To understand the mechanisms behind the underrepresentation of young people in public office, we conducted two novel survey experiments in Japan. We asked voters in these experiments to evaluate the photos of hypothetical candidates while altering candidates' faces using age regression and progression software. Contrary to the observed age demographics of politicians, the voters in our experiments strongly disliked older candidates but viewed younger and middle-aged candidates as equally favorable. Voters saw young candidates as less experienced but also more likely to focus on many policy issues over a longer period, including education, childcare, climate change, anti-corruption measures, and multiculturalism. Young voters especially liked young candidates, suggesting that greater youth turnout could increase youth representation. Conversely, elderly candidates were universally panned, seen as the least competent, least likely to focus on most policy issues, and least electable. Voter biases thus do not seem to be a driving factor behind the shortage of young politicians. To the contrary, voters appear perfectly willing to cast their ballots for young candidates.

Keywords Voting behavior · Representation · Age discrimination · Survey experiments · Japanese politics

In most countries, young people are underrepresented in political institutions. For instance, in Japan, despite nearly a third of the voting-age population being under

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40 years old, less than 10% of elected positions at any level of government are held by adults under 40 (McClean, 2021). Similarly, during the 2020 US congressional elections, citizens under 40 made up 37% of the electorate, yet they secured only 31 (7%) of the 435 seats in the House of Representatives and just one (3%) of the 35 seats up for grabs in the Senate (Frey, 2020).

Why are young people underrepresented in most public offices? It is crucial to understand the mechanisms behind institutional age biases because having more young adults in office can enhance the chances of debating and implementing policies that are important to young voters, such as increased spending on education and childcare (Bailer et al., 2022; Baskaran et al., 2022; McClean, 2021, 2023). A shortage of young politicians can also discourage young people from participating in elections, further reducing the already limited political influence of the young (Henn & Foard, 2012; Pomante & Schraufnagel, 2015). These issues are especially pressing in advanced democracies like Japan that confront the rapid aging of their electorates (Berry, 2014; Muramatsu & Akiyama, 2011). As the share of elderly voters grows, it may become even more challenging for young people to get attention to their interests unless they have sufficient representation in political offices.

To date, most studies have attempted to explain the overrepresentation of older people in elected bodies by emphasizing characteristics of younger generations or political institutions. Recent research in the United States suggests that young people have less political ambition because they feel alienated from contemporary politics; view elected officials as corrupt, dishonest, and inefficient; and believe that they can best enact change in their communities through other means (Lawless & Fox, 2015; Shames, 2017). In contrast, comparative studies point to institutions such as electoral systems that favor candidates with extensive experience and financial resources, high minimum age requirements for many elected offices, and absent or ineffective youth quotas as the main culprits behind graying government (Belschner & Garcia de Paredes, 2021; Joshi, 2013; Stockemer & Sundström, 2018).

In this article, we contribute to this ongoing debate by theorizing and testing an alternative explanation: voter biases. In doing so, we propose two potential pathways through which these biases could lead to youth underrepresentation in elected offices. The first pathway is youth discrimination: voters may hold an age bias against young candidates and therefore be less likely to vote for them. The second, not mutually exclusive, pathway is in-group favoritism: voters may prefer candidates closer to their own age, but the lower turnout rate of young people results in an overrepresentation of older elected officials. In addition to testing for evidence of these two types of biases, we explore the mechanisms behind them by analyzing whether voters infer certain characteristics about candidates based on their ages. For instance, stereotypes about age could lead voters to believe that younger or older candidates will be more likely to prioritize specific policy issues, adopt particular

governance styles, or win an actual election, which may affect their ultimate vote choice.¹

To examine age biases and stereotypes among voters, we conducted two novel survey experiments in Japan, a country where young people are significantly underrepresented in political institutions. Japan is known for its strong age norms, especially regarding respect for elders and clearly defined roles for younger and older citizens (Moriguchi & Ono, 2006; Nakane, 1972; Sung, 2001). These norms could contribute to age biases against young candidates seeking public office, suggesting Japan may provide a relatively easy case to find evidence of youth discrimination, if it exists. Japan is also at the forefront of population aging and has the highest proportion of elderly citizens in the world (Muramatsu & Akiyama, 2011). If the aging of the electorate is a factor driving youth underrepresentation, as suggested by our in-group favoritism hypothesis, then our findings may offer insights for the future of other advanced democracies that are following in Japan's footsteps.

For both of our experiments, we recruited respondents from among eligible Japanese voters and asked them to evaluate the photos of hypothetical candidates for mayor, which we manipulated using age regression and progression software to make the candidates appear as if they are younger or older. By taking advantage of recent advances in artificial intelligence, machine learning, and neural networks, we isolate and manipulate only the elements of these candidates' faces that tend to change with age, while holding other factors constant, such as the candidate's expression, underlying facial structure, and clothing.

The first experiment tests our two voter bias explanations—youth discrimination and in-group favoritism—by showing respondents two candidate photos with randomly manipulated ages, then asking for whom they would vote for in an election. The second experiment explores possible mechanisms behind voter biases—age stereotypes—by presenting a separate group of respondents with individual candidate photos, asking them to assess each candidate's likely issue emphases, traits, and electability.²

Our first experiment produced results that challenge the idea that young adults are underrepresented in elected bodies due to age biases among voters. Contrary to this, we find that respondents in Japan are equally likely to support younger and middle-aged candidates, but are highly averse to older candidates. Moreover, our tests for in-group favoritism also suggest a bias against older candidates. While younger and middle-aged respondents are more favorable toward candidates from their age group than others, older respondents are, if anything, even more critical of elderly candidates than others.

¹ In using the term “stereotypes,” we refer to a widely accepted definition from social psychology, which describes stereotypes as broadly held beliefs about specific groups of people. Our theoretical expectation is that voters may hold stereotypes of candidates of different ages in terms of their likely issue emphases, traits, and electability.

² To measure age stereotypes, we experimentally manipulate only the age of a hypothetical candidate and observe whether respondents' perceptions of the candidate's characteristics and traits systematically vary. In this way, our approach is similar to work on gender and race stereotypes [e.g., Huddy and Terkildsen (1993), Lerman and Sadin (2016), Mcdermott (1998), and Sanbonmatsu and Dolan (2009)].

The results of our second experiment shed light on why voters like younger candidates as much as middle-aged candidates and substantially more than older candidates. We find evidence that respondents hold significant age-related stereotypes, as suggested by their assessments of candidate characteristics. While younger candidates are viewed as less experienced, they are also seen as the most likely to focus on many policy issues over a longer period, including education, childcare, environment and climate change, anti-corruption measures, and foreign residents and multiculturalism. In contrast, middle-aged candidates are seen as the most competent, most likely to emphasize economic and safety issues, and most electable. Older candidates, however, are panned—viewed as the least competent, least likely to focus on most policy issues, and least electable.

In sum, we find little evidence that voter biases are to blame for youth underrepresentation in office, even within a society with strong age norms regarding respect for elders. Voters in our study viewed young candidates as likely to bring different attributes to office and as equally or more deserving of their vote. In fact, young voters showed a preference for their peers, indicating that higher youth turnout could lead to greater youth representation. Additionally, even older voters tended to prefer younger candidates, suggesting that the overrepresentation of older people is not simply due to an age affinity effect among a growing population of older voters with higher voter turnout. Ultimately, our findings suggest that if institutional barriers are reduced and young people are encouraged to run, voters may welcome their greater presence in public office.

Voter Evaluations of the Age of Candidates

Do voters discriminate against candidates based on their age? While there has been extensive research exploring how voters often rely on biases and stereotypes when evaluating candidates with varying ascriptive characteristics, this body of literature has predominantly focused on the effects of a candidate's gender, race, and ethnicity (Adida, 2015; Aguilar et al., 2015; Dolan, 2004; Huddy & Terkildsen, 1993; Lerman & Sadin, 2016; Mcdermott, 1998; Ono & Yamada, 2020; Sanbonmatsu, 2002; Shockley & Gengler, 2020). Consequently, we know little about whether voters infer candidate information based on age and, if they do, how it affects their candidate assessments.

Our study contributes to this literature in two significant ways: first, by incorporating age into the discussion, and second, by unearthing unique insights into how biases and stereotypes can influence voter evaluations through this inclusion. Age, unlike other ascriptive characteristics, represents a universally experienced and dynamic identity. Biases and stereotypes linked to age can be fluid, varying according to a voter's own age and societal norms related to different life stages. Younger candidates, for example, may be viewed as embodying a forward-looking vision, emphasizing innovation and a readiness to tackle long-term challenges such as climate change—unique facets that distinguish age from other ascriptive characteristics. Nevertheless, the perceived wisdom, experience, and resources

of older, more seasoned candidates often appeal to voters. These candidates offer immediate value and stability, which may outweigh the future-oriented promises of younger contenders. Moreover, while in-group favoritism may exist among younger voters toward candidates of their own age, the reality of typically lower youth turnout poses an extra complication. This disparity in turnout might hinder the electoral success of young candidates, introducing an added layer of complexity to the role of age in voter biases and stereotypes.

In addition, there are compelling reasons to believe that voters might feel less social stigma when they discriminate against candidates based on age compared to other ascriptive characteristics. While social norms and legal protections discourage discrimination based on a candidate's gender or race, age-based discrimination, especially against young candidates, is often perceived as less taboo. This phenomenon could be attributed to age's intricate association with experience, energy, health, maturity, and mental acuity—attributes considered pertinent when assessing an individual's capability to serve as an elected representative. Another contributing factor might be the absence of the same historical backdrop of exclusion and dominance that characterizes discrimination grounded in gender or race (Mansbridge, 1999; Phillips, 1995). Voters may also rationalize their biases against young candidates, believing that these candidates will have their chance to serve once they mature. These factors may collectively contribute to a wider acceptance of legal barriers against young candidates. For instance, while efforts have been made to eliminate obstacles to the engagement of women and racial or ethnic minorities in elected positions, regulations establishing minimum age requirements for candidacy remain intact, reflecting an ingrained societal bias against youth in politics. These age minimums typically range from 18 to 30, but can be as high as 40 for legislative office and 50 for executive positions in some countries.³

Age Biases

We focus on two sources of age bias that may contribute to the shortage of young politicians: youth discrimination and in-group favoritism. By youth discrimination, we mean the electorate's shared beliefs about the relative ability of young people to serve in public office, and by in-group favoritism, we refer to voter preferences for candidates closer to their own age. The former could lead to a shortage of young politicians if voters share a widespread dislike for them, while the latter would function via voter turnout—older voters turn out to vote at higher rates than younger voters, therefore in-group favoritism would suggest better ballot box odds for older candidates. Assuming everything else is held constant, we hypothesize the following for youth discrimination and in-group favoritism, respectively:

H1 Voters will be less likely to vote for younger candidates than older candidates.

³ The minimum age of candidacy is 40 for the upper houses of Cameroon, Czech Republic, Rwanda, and Zimbabwe, and 50 to be president of Italy.

H2 Voters will be more likely to vote for candidates closer to them in age.

In terms of youth discrimination, there are good reasons to believe voters may view certain candidates as “too young to run.” Prior research shows that voters are more likely to support candidates with greater name recognition, local ties to the community, financial resources, political networks, and experience, especially prior experience in elected office (Jacobson, 1983; Shugart et al., 2005). Yet, all these factors are also ones that individuals tend to accrue with age. Voters may therefore discriminate against young candidates because they infer that young people lack the political capital resources to be either competitive candidates or effective representatives.

It is also possible that negative sentiments directed toward young *voters* could translate into a negative bias against young candidates. The political arena is filled with critiques of the engagement levels exhibited by younger generations, evident in their comparatively lower voter turnout rates when contrasted with older demographics. As Holbein and Hillygus (2020, 7) write, young citizens have been described as “apathetic, disengaged, narcissistic, selfish, entitled, shallow, lazy, impulsive, confused, lost, impatient, and pampered.” The conventional wisdom often portrays young people as lacking the interest, sense of civic obligation, or skills to participate in the electoral process, despite their active engagement in other political activities such as protests (Wattenberg, 2007). Consequently, when considering young candidates, voters may draw on these familiar narratives concerning young people’s apathy toward electoral politics, leading them to view young candidates in a more negative light.

Alternatively, voter discrimination against young candidates may stem from a shared belief in an “optimal” age for a politician, one that skews significantly older. The literature on age discrimination in the workplace, for example, offers examples where workers perceive certain occupations to have “correct ages” (Posthuma & Campion, 2009). Industries like retail, sales, technology, and finance are often seen as particularly suited for young professionals, whereas roles requiring greater managerial skills tend to be associated with older workers. If voters similarly believe that elected representatives need managerial acumen to be effective—possibly following trustee models of representation (Fox & Shotts, 2009)—then they may regard older candidates as better suited for public office and judge younger candidates more critically as being “too young” for the role.

While we are unaware of any studies specifically concentrating on voter preferences toward young candidates, some studies have included age as a variable within their analyses using conjoint experiments to assess voter preferences more broadly concerning candidate attributes (Arnesen et al., 2019; Clayton et al., 2019; Horiuchi et al., 2020; Kirkland & Coppock, 2017; Ono & Burden, 2019). Nevertheless, these studies have not particularly focused on age as a key demographic characteristic, with the exception of Eshima and Smith (2022), who examine preferences toward elderly candidates. The findings within this literature are diverse, with some studies indicating a preference for middle-aged candidates over younger and elderly candidates, while others suggest an inclination toward younger candidates or no significant preference based on age. Although the

evidence of youth discrimination is mixed, most studies identify evidence of two somewhat paradoxical patterns: voters generally prefer candidates possessing greater political experience but also dislike candidates surpassing a certain age threshold.

Another, not mutually exclusive, explanation for youth underrepresentation could be attributed to in-group favoritism. Several studies find evidence that voters often prefer candidates who share similar demographic characteristics (Adida, 2015; Dolan, 2004; Sanbonmatsu, 2002; Shockley & Gengler, 2020; Terkildsen, 1993). While most research on affinity voting has focused on gender, race, and ethnicity, we hypothesize that comparable effects might also apply to age. Moreover, if age affinity voting indeed plays a significant role, then the scarcity of young politicians could be a consequence of low youth turnout in elections.

Voters may prefer candidates closer to them in age because of feelings of group solidarity, but they may also expect these candidates will be more likely to advocate for their interests in office. Research indicates that younger people have distinct policy preferences from older individuals across a wide range of issues, including education, childcare, unemployment, healthcare, immigration, gender equality, global governance, and environmental protection (Busemeyer et al., 2009; Wattenberg, 2007). Additionally, there is evidence that elected officials are more inclined to promote and implement policies important to voters of a similar age. For example, Curry and Haydon (2018) show that older members of the U.S. Congress are more likely to introduce legislation on senior issues such as elder abuse and late-life housing, while McClean (2021) finds that younger Japanese mayors are more likely to increase municipal spending on child welfare for younger families.⁴ These studies provide compelling reasons as to why voters may prefer similarly aged candidates.

Age Stereotypes

To explore potential mechanisms behind the youth discrimination and in-group favoritism explanations, we further examine three types of stereotypes through which a candidate's age could affect vote choice: issue emphases, traits, and electability.

First, as previously discussed, voters may infer that candidates will be more likely to prioritize policy issues that are particularly relevant to voters of similar age. For example, voters may expect that younger candidates will place greater emphasis on issues that disproportionately affect young people, such as childcare, education, and longer-term challenges like climate change (Busemeyer et al., 2009). On the other hand, voters may associate older candidates more with policies focused on pensions, senior services, and healthcare, as these issues particularly impact elderly retirees (Goerres, 2009). If voters consider these issues significant when evaluating candidates, then age stereotypes could play a role in driving in-group favoritism.

⁴ Scholars have found similar results in studies of Bulgaria (Baskaran, Hessami, and Schirner 2022), Germany (Bailer et al., 2022), and Japan's national parliament (McClean 2023).

H3a Voters will expect younger candidates to prioritize childcare, education, and climate change more than older candidates.

H3b Voters will expect older candidates to prioritize elderly welfare and healthcare more than younger candidates.

Second, as mentioned earlier, youth discrimination among voters may stem from the perception that young people lack the essential traits to become successful candidates or elected officials. This is not to suggest that younger candidates bring no positive traits to office. In fact, voters might anticipate that younger candidates would approach governance with a longer-term perspective, given their extended time horizons (Alesina & Passarelli, 2019; McClean, 2021). However, despite this potential advantage, voters may hold reservations about young candidates, viewing them as less experienced, less competent, or less reliable when compared to their older competitors. Additionally, voters may infer that inexperience could hamper young candidates' effectiveness in office, be it in assertively representing their constituents' interests or collaborating with fellow political figures to forge agreements and advance their agendas. If the electorate widely agrees that young people lack these crucial traits, it could serve as a mechanism underlying voter discrimination against young candidates.

H4a Voters will expect younger candidates to be more long-term oriented than older candidates.

H4b Voters will expect younger candidates to be less experienced, competent, and reliable than older candidates.

Finally, voters may use a candidate's age to deduce their likelihood of winning an election. Studies have long documented that voters often cast their ballots strategically rather than sincerely (e.g., Duverger, 1954). In many cases, voters may choose to support a candidate whom they believe has a better chance of winning over their preferred candidate. This strategic behavior could arise because voters do not wish to "waste" their vote if their preferred candidate has little to no chance of winning the election, or because voters receive some psychological benefit from joining the "bandwagon" and voting for a more popular candidate (Barnfield, 2020). Therefore, even if some voters favor younger candidates, they may strategically choose to support older candidates because they perceive these candidates as more electable. Concerns about the electability of young candidates could thus bolster youth discrimination among voters.

H5 Voters will expect younger candidates to be less likely to win an election than older candidates.

Age Regression and Progression Experiments in Japan

We test these hypotheses through an innovative experimental design in Japan, where we manipulate the images of hypothetical mayoral candidates via age regression and progression software. Japan provides an ideal setting to conduct these experiments for several reasons.

First, young adults are significantly underrepresented in mayoral offices in Japan, suggesting age biases may be salient in this context. Japanese citizens must be at least 25 years old to run for mayor, but from 2004 to 2019, the median age of an elected mayor was much older at 62, with the most common age being 65 (McClellan, 2021).⁵ If we partition the voting-age population into three roughly equal groups (aged 18–44, 45–64, and 65 and over), we can see that young voters are by far the most underrepresented in mayor's offices. Between 2004 and 2019, adults under 45 constituted 38.8% of the electorate but accounted for a mere 4.4% of mayors. In stark contrast, middle-aged voters are significantly overrepresented: while 31.4% of eligible voters were between the ages of 45 and 64, 59.7% of mayors fell into this age group. The final group, older voters, are also overrepresented, albeit to a lesser extent than middle-aged voters. Citizens aged 65 or older made up 29.7% of the voting-age population but 35.9% of mayors (McClellan, 2021). Notably, despite much public attention being paid to youth underrepresentation in national politics, young mayors are even less common than young members of the national parliament, where as of 2020, 17.2% of lower house members and 10.3% of upper house members were under 45 (Inter-Parliamentary Union, 2021). This suggests that age biases may be more severe in local executive office races.⁶







Second, Japan provides a compelling setting for observing potential biases against young candidates, as it is a society with strong norms emphasizing respect and deference to one's seniors. This age-based hierarchy pervades nearly every aspect of Japanese life, from expressions of filial piety within families (Sung, 2001) to the *senpai-kouhai* (senior-junior) relationships present in organizations, businesses, and schools (Nakane, 1972). Many institutions, including political ones, operate under strict seniority systems, bestowing individuals with increased power and status as they gain experience with age (Moriguchi & Ono, 2006; Pekkanen et al., 2006). Consequently, it is relatively uncommon for younger individuals to hold positions of authority over their older counterparts, which may reinforce biases against young candidates aiming to represent an older voting population.

Third, studying the link between age biases and youth representation in Japan is essential, as the country is at the forefront of population aging worldwide. As the elderly population grows, a declining number of young people may feel resentful at bearing an increasing burden of supporting them and consequently demand greater political representation to protect their interests (Kweon & Choi, 2022; McClellan, 2021). However, achieving this may prove difficult, as the rising share of elderly voters may also pose significant challenges for young adults seeking office, as

⁵ Candidates ranged in age from 25 to 88, with a median age of 61.

⁶ Politicians' ages are measured at the time of their last election.

Table 1 Manipulated photos of hypothetical mayoral candidates

	Younger	Middle-Aged	Older
Candidate 1			
Candidate 2			

suggested by our in-group favoritism hypothesis (H2). These dynamics underscore the importance of examining age biases in Japan, as it could offer valuable insights into the future of youth representation in other advanced democracies grappling with similar demographic trends.

Finally, we concentrate on mayoral candidates because studying voter evaluations of legislative candidates' ages can be complicated due to the influential role of political parties and seniority norms. Voters may perceive younger legislators as more junior—and thus less powerful—within their party and the assembly than older legislators. Mayoral races bypass these confounding factors as they are largely nonpartisan, with nearly every candidate running as an independent, and mayors, as executives, possess a similar capacity to affect public policy regardless of age.⁷ Additionally, Japanese political campaigns are highly regulated, with candidates prominently featuring large, color photos of their faces on posters in high-traffic areas as a primary means of voter engagement (Lewis & Masshardt, 2002; McElwain, 2008). This reliance on candidates' faces bolsters the construct validity of our face manipulation experiments. Furthermore, the candidate pool for mayoral races is largely homogeneous—over 99% are ethnically Japanese and 98% are men—making age one of the most distinct observable differences between candidates (McClellan, 2021).

Experiment 1: Age Biases

To test for age biases and stereotypes, we fielded two experiments. In Experiment 1, we aimed to test our hypotheses for youth discrimination (H1) and in-group favoritism (H2). Experiment 1 was administered in March 2020 by Rakuten Insight Inc., one of Japan's major survey firms, to a randomly selected sample from its online subject pool. To obtain a sample that was more representative of our target

⁷ Mayors wield significant policy discretion, which may increase in the future given the recent trend toward granting greater autonomy to municipal governments.

population of Japanese voters, we set quotas based on respondents' age, sex, and region of residence.⁸ Overall, we collected a sample size of 2,901 citizens of eligible voting age (18 or older).

For Experiment 1, we licensed the photos of two different male Japanese models from Shutterstock, an image warehouse (Table 1). These photos are styled similarly to typical campaign posters: both men wear dark grey suits with brightly colored ties, smile slightly while facing the camera directly, and sport relatively conservative, common haircuts that could be seen on younger and older candidates. One of the models is even raising a clenched fist, using a gesture frequently adopted by candidates of all ages in campaign posters.

We used FaceApp, a mobile application created by Wireless Lab, to augment the pair of candidate photos to appear younger or older. Importantly, FaceApp's age regression and progression algorithms only manipulate those elements of each photo that are likely to change with age, leaving the candidate's underlying facial structure, expression, hairstyle, and clothes as well as the background of the original photo intact.⁹ Accounting for these factors is key, given the extensive literature on the ways different aspects of a candidate's appearance, from attractiveness to smile, facial structure, and skin tone, can influence voter evaluations (Horiuchi et al., 2012; Terkildsen, 1993; Todorov et al., 2005). FaceApp, in other words, allows us to sidestep several confounding factors that might otherwise affect our analysis.

We created three versions of each candidate's image, each corresponding to a different age bracket within the usual range for mayoral candidates: one younger (age 25–44), one middle-aged (age 45–64), and one older (age 65 or older). To validate the apparent ages of the photos, we asked respondents to estimate each candidate's age at the end of our survey. On average, respondents estimated the ages of Candidate 1 to be 37, 60, and 79 years old, and those of Candidate 2 to be 36, 58, and 78.¹⁰ The vast majority of respondents (88%) correctly estimated the ages of our candidate photos to be within the intended age ranges.¹¹

In Experiment 1, each respondent viewed a pair of photos (one of each candidate) randomly selected from the variations presented in Table 1. Respondents were asked to assume that these two individuals were candidates for a mayoral election. We mentioned that neither candidate was the incumbent, both candidates were independents, and the election was in the municipality in which the respondent resided. Respondents then indicated which candidate they would vote for in the election and completed the experiment only once.

⁸ See Appendix for more information on survey representativeness.

⁹ FaceApp gained widespread attention in 2019 because of its photo-realism. While we believe the photos look like realistic candidates—and, notably, none of our respondents complained about the photos looking “fake”—future studies should further investigate whether using artificially manipulated as opposed to real photos can affect respondent evaluations of candidates.

¹⁰ We found similar estimates in a pilot survey (sample size: 300). The average age estimates were 36, 62, and 82 for Candidate 1, and 33, 58, and 80 for Candidate 2.

¹¹ We find similar results if we restrict our analyses to only those respondents who successfully passed manipulation checks based on their age estimates (Tables A3, A6, A9, A12).

Experiment 2: Age Stereotypes

To investigate the mechanisms underlying the age discrimination tested in Experiment 1, we fielded a second, parallel survey experiment. Experiment 2 was administered the same month (March 2020) as Experiment 1 as part of the “Survey on Attitudes Toward Politics, Society, and the Economy,” conducted by the Research Institute of Economy, Trade, and Industry (RIETI), a Japanese policy think-tank. RIETI used Rakuten Insight, the same firm we used in Experiment 1, to administer this survey. From Rakuten’s subject pool, we drew a sample of 3,000 new respondents of eligible voting age, again matching the population census distribution in terms of respondent age, sex, and region of residence. No respondents participated in both Experiments 1 and 2.

To test our three hypothesized age stereotypes, we presented respondents with a single, randomly selected candidate photo from Table 1, then asked questions about the candidate’s likely policy emphases (H3a, H3b), traits (H4a, H4b), and electability (H5). We selected a set of 11 policy issues and eight traits based on our substantive knowledge about local government in Japan, as well as consulting past elite and public opinion surveys. In doing so, we sought to strike a balance between common issues and traits found in other studies of candidate evaluations with those we hypothesized to have a particular connection with age, such as age-related welfare policies and prior political experience.

For each of our mechanism questions, respondents answered on a 5-point Likert scale, ranging from “Very Unlikely” to “Very Likely” to emphasize the policy issue, exemplify the trait, or win an election. We then dichotomized this scale, using the combined percentage of respondents who said “Likely” or “Very Likely” as our dependent variable. Each respondent completed the experiment twice, once for each candidate.

To the best of our knowledge, our study is the first to use age regression and progression software in either a candidate choice (Experiment 1) or candidate evaluation (Experiment 2) experiment. Thanks to developments in artificial intelligence, machine learning, and neural networks, applications like FaceApp have become increasingly sophisticated, making it easier for researchers to manipulate the perceived ages of photos. Studies in other fields, for example, have examined how exposure to a projection of their future appearance can alter individuals’ attitudes toward aging and the elderly (Rittenour & Cohen, 2016). Age progression software is also commonly referenced in criminology research, given its use by law enforcement agencies in searches for missing persons and wanted fugitives (Lampinen et al., 2012). However, prior studies have yet to explore how voters react when presented with candidate photos of varying perceived ages.

The handful of candidate experiments that at least mention age have typically relied on conjoint designs.¹² Compared to our experiments, these analyses do have an advantage of controlling for a wide range of candidate characteristics

¹² A notable exception is Pomante and Schraufnagel (2015), who use candidate photos to study youth turnout. However, our design improves upon theirs by manipulating photos of the same individual, minimizing variations beyond age.

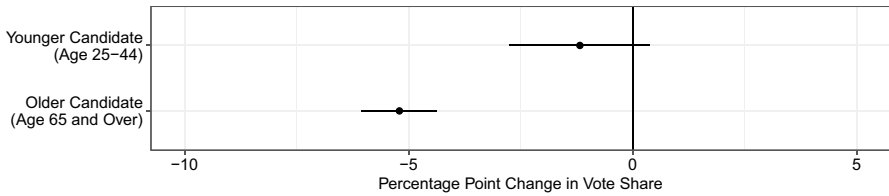


Fig. 1 Candidate age and vote choice (real-world election results). *Notes:* Linear regression models estimated with controls for gender, party, incumbency, and municipality and year fixed effects. Middle-aged candidate (age 45–64) is the baseline category

and simulating an information-rich environment (Hainmueller et al., 2014). A disadvantage, however, is that evaluating long lists of candidate attributes in contrast to each other often deviates from many voters’ cognitive processes when evaluating real-world candidates. Few voters gather comprehensive information on the entire slate of candidates before voting, instead relying on information shortcuts based on easy-to-observe candidate characteristics such as their party, appearance, gender, race, and, as we argue, age.

Our experiment’s distinct advantage is its focus on a low-information environment approximating the real-life process in which voters evaluate a candidate’s age via their appearance, such as when they view a candidate poster in Japan. Studying the effects of candidates’ perceived ages in photos, as opposed to the chronological ages of candidates listed in conjoint experiments, is further important given that voters often infer a candidate’s age based on their facial appearance rather than learning their exact age via other means. Our design allows us to estimate age effects that would typically be challenging to measure in an experimental setting: specifically, how voters would evaluate a given candidate if that candidate somehow appeared younger or older.

Age Biases

Real-World Election Results

Before presenting our experimental results, we first examine whether age biases against young candidates are evident in real-world elections. To do this, we use a dataset from McClean (2021) that includes information on the near universe of candidates who ran for mayor in Japan’s 1,741 municipalities between 2004 and 2019. Following our experimental design, we divide candidates into three age groups: Younger (25–44), Middle-Aged (45–64) and Older (65 and over). We then estimate linear regression models where the dependent variable is a candidate’s vote share and include all available control variables in the dataset, namely, gender, party, incumbency, and municipality and year fixed effects. Figure 1 presents a coefficient plot of the results with middle-aged candidate as the reference category.

In sharp contrast to the idea that voters prefer older politicians over younger ones (H1), we find that younger candidates receive as many votes as middle-aged

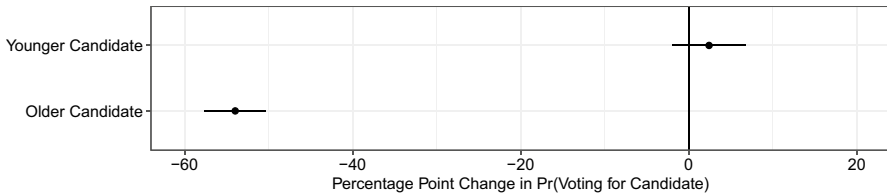


Fig. 2 Candidate age and vote choice (experimental results). *Notes:* Middle-aged candidate is the baseline category

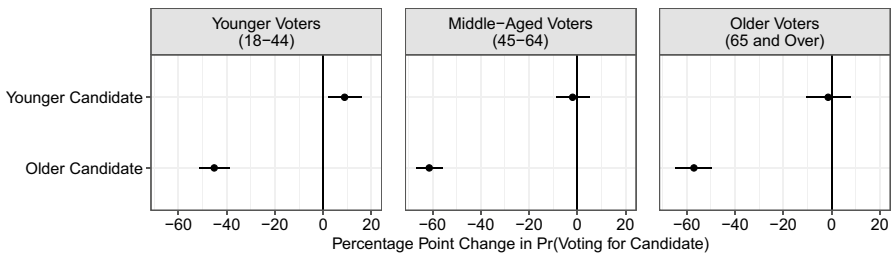


Fig. 3 Candidate age and vote choice by age of voter. *Notes:* Middle-aged candidate is the baseline category

candidates, while the vote share of older candidates is roughly 5 percentage points less than middle-aged candidates. Although these observational results lack causal identification and could potentially be confounded by other factors, they suggest that voters might not harbor strong biases against young candidates in real-world contexts.

Experimental Results

To search for causal evidence regarding age biases, we turn to our age regression and progression experiments. For ease of presentation, we average our results across the two hypothetical candidates and condense our experiment into the three treatment conditions featuring candidates who appeared different in age: Younger vs. Middle-Aged, Younger vs. Older, and Middle-Aged vs. Older.¹³ Following the same presentation style in Fig. 1, Fig. 2 illustrates the difference in the likelihood of respondents indicating a preference for the younger or older candidate, using the middle-aged candidate as the baseline.

Our experimental results offer even stronger evidence against H1 than the real-world test. Survey respondents were also indifferent between younger and middle-aged candidates but displayed a significantly stronger aversion toward older candidates. When presented with a hypothetical mayoral race between an older

¹³ See Appendix for results disaggregated by candidate.

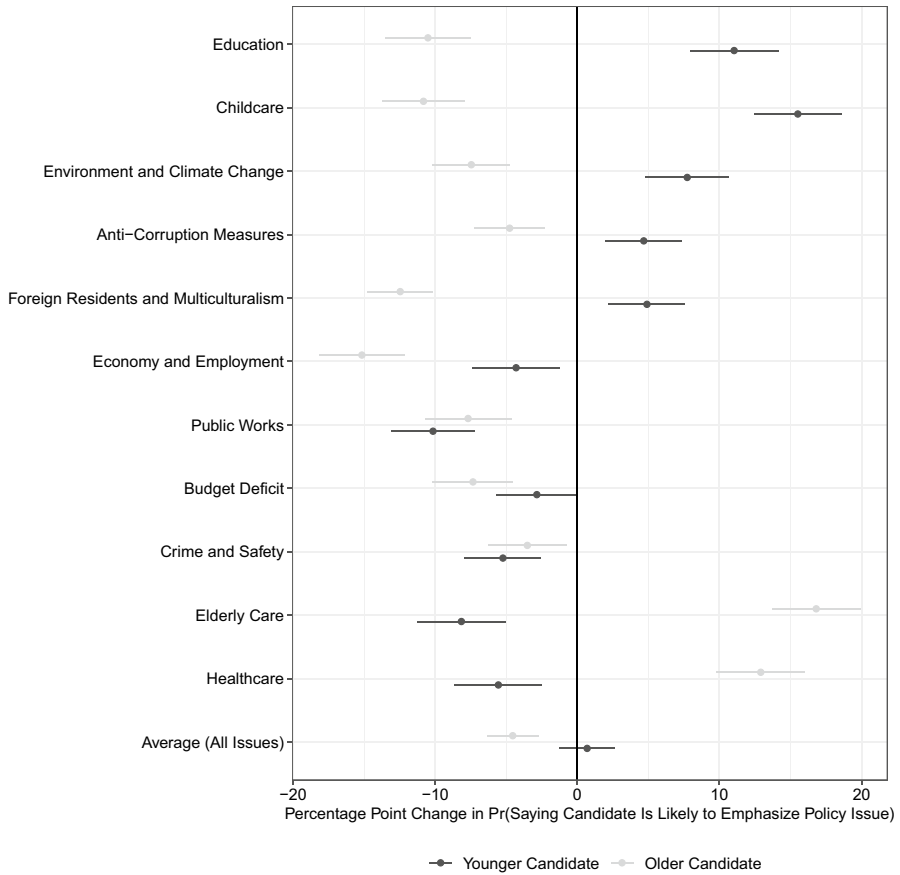


Fig. 4 Candidate age and policy issues. *Notes:* Middle-aged candidate is the baseline category

candidate and either a younger or middle-aged candidate, respondents were more than 50 percentage points less likely to favor the older candidate.

Experiment 1 also provided the opportunity to test our expectations concerning in-group favoritism (H2), a task that poses challenges in real-world scenarios due to the scarcity of individual-level surveys on mayoral vote choice. In line with our age ranges for candidates, Fig. 3 breaks down our experimental results into three voter age groups: Younger Voters (18–44), Middle-Aged Voters (45–64), and Older Voters (65 and over).

We find clear evidence of in-group favoritism among younger voters, but the evidence was inconsistent among middle-aged voters and absent among elderly voters. Younger voters preferred younger-looking candidates to middle-aged ones by 8.9 percentage points and to older candidates by 54.0 percentage points. Middle-aged voters had the most favorable opinions of middle-aged candidates, choosing them over older candidates by 59.4 percentage points, but

they were equally supportive of younger and middle-aged candidates. And when it comes to older voters, we find they are just as critical—if not more—of older candidates as other voters. Respondents aged 65 and over were 57.0 percentage points less likely to favor older candidates over middle-aged candidates, and 55.6 percentage points less likely compared to younger candidates.

Age Stereotypes

Why do voters favor younger candidates as much as middle-aged candidates, and substantially more than older candidates? Why do younger voters prefer candidates closer to their own age, but older voters do not? We turn next to investigating the results of our age stereotype tests concerning policy issues, traits, and electability.

Policy Issues

Figure 4 plots the results for our 11 policy issues. Of these issues, respondents identified five as being most closely associated with young candidates. Consistent with H3a, respondents expected young candidates to prioritize policies with a significant impact on younger populations—namely, education, childcare, and environment and climate change. Respondents said that younger candidates would be 11.0, 15.5, and 7.7 percentage points more likely to emphasize these three issues than middle-aged candidates, and 21.5, 26.3, and 15.2 percentage points more likely than older candidates, respectively. In addition, young candidates were considered the most likely to address progressive policies relating to anti-corruption measures and foreign residents and multiculturalism.

For middle-aged candidates, respondents associated them with four policies concerning the economy and public safety. Reflecting a curvilinear relationship, respondents expected middle-aged candidates to prioritize the economy and employment, public works, budget deficit, and crime and safety more than either their younger or older counterparts. While we did not present a specific hypothesis regarding middle-aged candidates, these findings for economic policies might suggest that voters perceive middle-aged candidates as striking a balance between having more experience with the economy compared to younger candidates, yet still being active participants in the labor force compared to older candidates. It is noteworthy, however, that respondents saw younger candidates as only *marginally* less likely to focus on the economy and employment than middle-aged candidates, and significantly more likely to stress these issues than older candidates.

In alignment with H3b, respondents expected older candidates would prioritize elderly care and healthcare the most. Similar to education and childcare for younger candidates, the effect sizes for these welfare policies are substantial. Respondents believed that older candidates would be 16.8 and

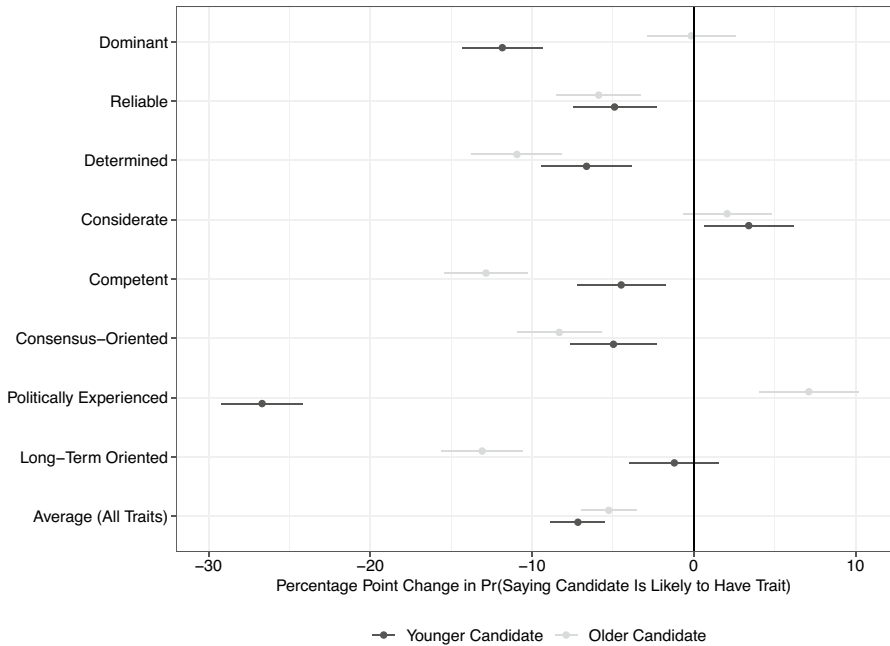


Fig. 5 Candidate age and traits. *Notes:* Middle-aged candidate is the baseline category

12.9 percentage points more likely to emphasize these issues than middle-aged candidates, and 25.0 and 18.5 percentage points more likely than younger candidates, respectively.

Overall, respondents viewed older candidates as devoting the least attention to policy issues. The average across issues in Fig. 4 indicates that respondents were 4.6 percentage points less likely to say older candidates would focus on any given policy issue compared to middle-aged candidates, and 5.2 percentage points less likely compared to younger candidates.

Traits

Figure 5 explores the link between a candidate’s age and voter evaluations about eight different personal traits. In line with H4a, we find that respondents were 11.9 percentage points more likely to view younger candidates as adopting a longer-term perspective compared to older candidates, though the difference between younger and middle-aged candidates is not statistically significant.

Our results for H4b, however, offer a more nuanced picture. As anticipated, respondents were 33.8 percentage points less likely to perceive younger candidates as politically experienced compared to older candidates, and 26.7 percentage points less likely relative to middle-aged candidates. Yet, contrary to our expectations, respondents assessed younger candidates as 8.4 percentage points more likely to be competent and 1.0 percentage point more likely to be reliable than older candidates,

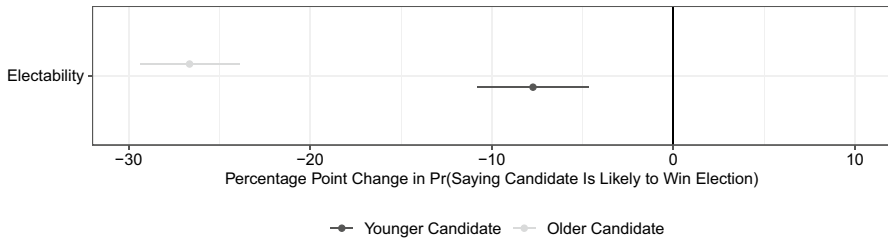


Fig. 6 Candidate age and electability. *Notes:* Middle-aged candidate is the baseline category

although the latter finding was not statistically significant. Beyond our hypotheses, respondents also perceived younger candidates as 4.3 percentage points more likely to be determined and 3.4 percentage points more likely to be consensus-oriented compared to older candidates. However, older candidates were seen as more dominant, with an 11.7 percentage points advantage over younger candidates.

On the whole, respondents predominantly held middle-aged candidates in the highest regard in terms of traits, with a few exceptions. Respondents inferred that middle-aged candidates were more likely to exhibit traits such as reliability, determination, competence, and consensus-building compared to candidates from other age groups. Among the candidates, younger ones were perceived as the most considerate, whereas older candidates were credited as the most politically experienced.

Electability

Finally, Fig. 6 presents the results for our third age stereotype, electability. Our findings for this hypothesis (H5) reveal mixed results: respondents considered younger candidates less electable than middle-aged candidates, yet more electable than older candidates. When presented with a younger-looking version of a candidate's photo, respondents were 7.7 percentage points less likely to predict the candidate would win an election compared to those who viewed the middle-aged version, but 18.9 percentage points more likely compared to those who saw the older version.¹⁴

Together, these findings from Experiment 2 regarding age stereotypes offer insights into our age bias results from Experiment 1. Our results suggest that the overall null effect in voter preferences for younger candidates compared to middle-aged candidates may stem from different, offsetting mechanisms. Respondents viewed younger candidates as the most likely to prioritize a range of policy issues (including education, childcare, environment and climate change, anti-corruption measures, and foreign residents and multiculturalism), yet considered middle-aged candidates as the most electable, most likely to focus on the economy and safety, and the most competent. Moreover, we find robust support for the strong negative

¹⁴ These patterns hold even when accounting for perceived attractiveness differences between younger and older candidates (Table A12).

bias against elderly candidates in all three analyses of Experiment 2. Respondents deemed older candidates as the least likely to focus on policy issues, least competent, least long-term oriented, and least likely to win an election.

In the Appendix, we further examine whether respondents view candidates from their age group as more likely to emphasize certain issues or traits, or as more electable (Figure A2). However, we find no systematic differences in candidate attribute inferences by respondent age.¹⁵ Therefore, the in-group favoritism observed among younger respondents in Experiment 1 does not seem to be driven by younger respondents forming different expectations about younger candidates than older respondents. Instead, it is plausible that younger respondents' affinity for younger candidates stems more from younger respondents valuing certain attributes differently from older respondents, such as policy attention to education, childcare, and climate change. More research is needed to explore whether the age of voters affects the weight they assign to different candidate attributes.

Discussion

Young people are underrepresented in most political institutions. However, our results suggest that many voters—especially those who are younger—may want to see this age bias corrected. Across our experimental analyses, we observe a preference for younger candidates over elderly ones. Middle-aged and older voters demonstrate equal support for younger and middle-aged candidates, while younger voters show a clear preference for their own age group.

Two caveats to our results are worth mentioning. The first is that our face manipulation experiments emulate the natural progression of aging but do not account for efforts to reverse these changes, such as undergoing plastic surgery or coloring one's hair. Many older politicians might resort to these methods to appear younger, and our experiments suggest that voters are likely to reward them for doing so. There is some suggestive, observational evidence that voters in Japan prefer candidates who alter their appearance to look younger on their campaign posters (Kohno & Sakurai, 2020), and future studies might follow our lead to use face manipulation software to test these effects in an experimental setting.

The second caveat concerns the external validity of our experiment. While we have confidence in our experiment's internal validity, further research is needed to test the generalizability of our findings to other political races. The fact that we find no evidence of biases against young candidates in Japan—a country known for its predominantly older elected officials, strong norms of elder respect, and the world's highest proportion of elderly citizens—might suggest that our findings will translate to other country settings. Notably, our experimental findings concerning in-group favoritism align with observational results from studies in other countries (Sevi, 2021; Webster & Pierce, 2019), though we depart in finding that in-group favoritism is strongest among younger voters and absent for elderly voters. Our study of a hypothetical mayoral race also revealed voter preferences

¹⁵ We similarly find few differences by voter gender, education level, or ideology (Figures A3, A4, A5).

more evenly balanced between younger and middle-aged candidates and stronger negative biases against older candidates compared to conjoint studies of hypothetical candidates for national legislatures in Japan and elsewhere (Eshima & Smith, 2022). These disparities across studies might indicate specificity in preference for specific offices (we focus on mayors, who are local executives with greater policy discretion than legislators), or they may reflect our study's focus on perceived age, rather than chronological age, in a low-information setting. These possibilities present fascinating directions for future research disentangling the ways voters' age biases might affect choice differently across government levels, types of positions, levels of policy influence, and information environments.

With these caveats in mind, our study has important implications for ongoing efforts to expand young people's presence in political institutions. If institutional reforms are implemented and young adults are encouraged to run for office, our findings suggest that voter biases are unlikely to pose a substantial obstacle for them. Furthermore, our results imply that campaigns aimed at increasing youth turnout might also positively impact youth representation, given the strong in-group favoritism among young voters.

Our study also enriches the literature on voter biases concerning ascriptive characteristics. While much of the previous conversation has concentrated on gender, race, and ethnicity, we not only expand this dialogue by introducing age, but also uncover the unique ways in which age-related biases and stereotypes influence voter evaluations. Perhaps most notably, our findings offer insights into the trade-offs that voters encounter between electing a middle-aged or older candidate with more political experience (Jacobson, 1983; Shugart et al., 2005) and a younger candidate capable of delivering different public goods over a longer period (Baskaran et al., 2022; McClean, 2021). We find that voters value political experience, but only up to a certain point, as there is a sharp drop-off in voter evaluations of candidates as they become elderly. Conversely, voters seem perfectly willing to support young candidates despite their limited experience, perceiving these candidates as more likely to prioritize a wide range of policies and operate from a long-term perspective.

Finally, we hope that our new experimental design can inspire additional work on age in other countries and electoral contexts. Our study only scratches the surface in terms of what is possible using age regression and progression software. As these applications grow increasingly sophisticated and accessible, researchers should explore the ways individual ages interact with other identity-based discrimination, such as gender and race stereotypes.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s11109-024-09920-2>.

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Data Availability The data and replication files are available at <https://doi.org/10.7910/DVN/93YDQM>.

Declarations

Competing Interests The authors declare no competing interests.

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