IGNORANCE IS BLISS?
AGE, MISINFORMATION, AND SUPPORT FOR WOMEN’S REPRESENTATION

BARRY C. BURDEN*
YOSHIKUNI ONO

Abstract Most people overestimate how many women have been elected to Congress and state legislatures, but this misinformation reduces with age. Multivariate analysis of our original survey data confirms that young people are prone to overestimating how many seats are held by women, and this pattern is especially sharp among male respondents. In addition, a memory of being represented by a woman in the past tends to inflate overestimates further. Erroneous thinking among the young may produce an “ignorance is bliss” effect by reducing the apparent need to elect more women to office and raising levels of trust in government. In contrast, more realistic beliefs among older people make the dominance of men in public office more apparent and actionable.

Representative democracy works best when constituents are able to formulate, express, and act on preferences that reflect their values and interests. This system breaks down if the public has incomplete or incorrect information about public affairs. In the worst case, misinformation could lead a person to support a position that is contrary to their interests. For these reasons, political information has been called “the currency of politics” (Delli Carpini and Keeter 1996). Research has shown substantial differences across subsections of the electorate in what they know and believe about the structures of government, public policy, political events, and specific politicians. We take

BARRY C. BURDEN is a professor in the Department of Political Science at the University of Wisconsin-Madison, Madison, WI, USA. YOSHIKUNI ONO is a professor in the Faculty of Political Science and Economics at Waseda University, Tokyo, Japan. The authors thank Levi Bankston and Blake Reynolds for research assistance and the Japan Society for the Promotion of Science for financial support [Grants-in-Aid for Scientific Research 16H03564 to Hatsuru Morita, 17K03523 to Y.O., 18H00813 to Masaki Taniguchi, and 20H00059 to Y.O.]. This study was conducted as part of a research project on political behavior and decision making at the Research Institute of Economy, Trade, and Industry (RIETI). *Address correspondence to Barry Burden, Department of Political Science, University of Wisconsin-Madison, 1050 Bascom Mall, Madison, WI 53706 USA; email: bcburden@wisc.edu.

doi:10.1093/poq/nfaa059
© The Author(s) 2021. Published by Oxford University Press on behalf of American Association for Public Opinion Research. This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs licence (http://creativecommons.org/licenses/by-nc-nd/4.0/), which permits non-commercial reproduction and distribution of the work, in any medium, provided the original work is not altered or transformed in any way, and that the work is properly cited. For commercial reuse, please contact journals.permissions@oup.com
the inquiry in a new direction by exploring what Americans believe about the prevalence of women in public office and what factors influence those beliefs. Inspired by other studies suggesting young people surprisingly show the most bias against female candidates, we focus on age as a key determinant of factual beliefs about the representation of women. We find that incorrect beliefs are more common among the young, leading to several surprising consequences that deserve additional research.

What We Know about Misinformation in the Public

When asked directly in survey questions, the American public expresses relatively firm opinions about the current state of descriptive representation. Respondents appear to have clear preferences about whether demographic groups in the electorate are appropriately reflected in government. Because young Americans tend to show more egalitarian, feminist, and liberal views than their older counterparts (e.g., Pampel 2011; Peterson, Smith, and Hibbing 2020), views about descriptive representation ought to vary with age. According to a recent Pew survey, 59 percent of Americans believe there are “too few” women serving in high political offices, especially so among young respondents (Horowitz, Igielnik, and Parker 2018). What are these views based on? Presumably, each respondent has a belief about how many women are in public office and whether that level of representation is satisfactory. But what if these beliefs about the current levels of representation are systematically incorrect? Views about representation are likely to be affected by misinformation, also known as misperception or the holding of incorrect beliefs (e.g., Nyhan and Reifler 2010). ¹

While we admit that some factual information, such as knowing who is the current chief justice of the Supreme Court, is not needed for most political judgments (Lupia 2006), other factual beliefs are more relevant, if not necessary, to form and act on opinions that reflect one’s preferences. When voters do not even know which party controls Congress, it is difficult for them to hold government accountable because they cannot correctly identify which party to blame and which to reward (Bennett and Bennett 1993). On policy matters, surveys show that the public believes the federal government spends much more of its budget on education, Social Security and Medicare, and foreign aid than it actually does (Delli Carpini and Keeter 1996). As a result, when surveys show that a majority of the public wishes to increase federal spending on education or foreign aid, it is coming from a place of

¹. Kuklinski et al. (2000) add to this definition that misinformation must also be accompanied by confidence. Interestingly, they find that confidence is actually higher among those who hold inaccurate beliefs. See also Graham (2020) on the connection between accuracy and certainty.
misinformation. The public’s preferences would presumably be different if they knew more.

In their study of public opinion toward Congress, Hibbing and Theiss-Morse (1995) find that the public underestimates the prevalence of “bad” aspects of the House of Representatives. The public views Congress unfavorably despite believing that average term lengths are shorter than they really are, congressional salaries are lower than they really are, and the number of staffers is smaller than it really is. This leads to the surprising conclusion that correcting misinformation might actually cause the public to lower its evaluations of Congress further. It is consistent with analysis by Baker and his colleagues (1996) showing that Americans who are more knowledgeable about Congress are actually less supportive of it. When it comes to beliefs about women in office specifically, Stauffer (2019) finds that people who estimate higher percentages of women in Congress are more satisfied with the legislative process and view the legislative branch as more competent.

Misinformation may be in part due to general innumeracy in the population. In particular, there is evidence that people systematically overestimate small proportions because of inherent psychological processes that draw them away from extreme values. In addition to political biases, individuals who are uncertain about the facts tend to adjust small percentages upward to more moderate values closer to 50 percent (Landy, Guay, and Margheritis 2018). For example, people significantly overestimate the proportion of the population that is foreign-born (Citrin and Sides 2008) or gay or lesbian (Haider-Markel and Joslyn 2018).

Public beliefs about the demographic makeup of the population also have roots in personal experience. Nadeau, Niemi, and Levine (1993) found that overestimating the sizes of the Black, Hispanic, and Jewish populations in the United State was most prevalent among the young, the less educated, and those living in areas with larger minority populations. Later research showed that both blacks and whites were more prone to overestimate the share of the population that is black when they had more personal contact with blacks (Sigelman and Niemi 2001). Moreover, estimates of national percentages appear to be colored more by subjective beliefs about the size of the local minority population than by objective measures of local percentages (Wong 2007). Estimates of the gay and lesbian population have also been found to be inflated and affected by personal exposure to members of those groups (Martinez, Wald, and Craig 2008). “Extrapolating outward” in this way from personal experience has become a common finding in the literature (Alba, Rumbaut, and Marotz 2005).

Conclusions are somewhat different among studies of public knowledge of statistics about the economy rather than the population. Respondents sometimes do well in estimating common numbers such as the unemployment rate and price of gasoline. In these economic applications, respondents’
beliefs are colored by whether they share the party affiliation of the president (Ansolabehere, Meredith, and Snowberg 2013; Lawrence and Sides 2014). These biases are apparently a result of intentional “expressive responding” in which respondents strategically support a politician of the same party or strategically denigrate a politician of the opposing party (Schaffner and Luks 2018). Partisan biases thus reflect more than divergent but sincere beliefs; the gaps in responses by Democratic and Republican respondents can be reduced if they are provided with incentives to be correct (Bullock et al. 2015; Prior, Sood, and Khanna 2015).

**Thinking about Descriptive Representation of Women**

When examining public beliefs concerning the descriptive representation of women, a significant disconnect appears to exist among the young. Direct questioning indicates that young people are more egalitarian and more supportive of electing a larger number of women. However, indirect methods of measuring attitudes and behavior sometimes do not show greater support for female politicians among the young. In some cases, they actually show the opposite, with older people displaying more favorability toward female politicians. Consider two recent studies of this type. A list experiment fielded by Burden, Ono, and Yamada (2017) to examine hidden bias against women running for president produced a surprising result that the oldest cohort displays the lowest levels of animus. In a follow-up study that used a conjoint experiment to explore how voters respond to male and female candidates, Ono and Burden (2019) estimated the largest anti-female bias among young voters, with bias decreasing steadily into older age cohorts. We suggest that this apparent mismatch between expressed preferences and those that are revealed surreptitiously may be the result of differing amounts of political knowledge between the young and the old.

There are reasons to believe that young people are more prone to misconceptions. Most obvious is that young people generally have less experience in the political world, consume less news, and might not have yet completed their formal education. However, even after controlling for these factors, young people have fewer correct beliefs because of their exposure to different kinds of news and entertainment media, different patterns of interpersonal communication, projection of more liberal and egalitarian values, and different direct exposure to female officeholders.

To examine whether the young are less correct in their knowledge about women’s representation, it is imperative to measure what people actually believe. The seminal studies of this type are by Sanbonmatsu (2003), Dolan (2011), and Stauffer (2019), all of whom have analyzed surveys asking what percentage of Congress is female. Between 20 percent and 50 percent of respondents offered estimates that were close enough to the true value to be
considered “correct,” but the most common tendency was to overestimate. These beliefs have important consequences: those who underestimate women’s prevalence tend to want more women in Congress, whereas those who overestimate see less need to elect more women.

These foundational studies guide our analysis, yet none of them were focused squarely on identifying the determinants of public beliefs about women in office. Illuminating these factors will reveal the degree to which they are rooted in individual-level characteristics and contextual variables that are not easily manipulated, or more contingent factors that are in theory alterable.

Inspired by some research that showing older voters are less biased against female candidates than are younger people, we examine several theoretical expectations. First, following prior studies, we expect the public to overestimate the prevalence of women in public office. In addition to the general tendency toward inflation, we expect to observe wide variation in beliefs. Second, political context will affect public beliefs. Given the tendency for extrapolating outward from personal experience, beliefs are likely to reflect in part actual levels of female representation and beliefs about whether respondents have been personally represented by female officials. Third, we expect respondents’ beliefs about women in office to vary by individual characteristics. Prior research has shown that estimates are more accurate among respondents who are white, have higher levels of education, and—of special interest here—are older.

**Data**

To test these theoretical expectations, we commissioned an original national survey of the American electorate. Data were collected online by the polling firm YouGov in February 2019 using the company’s standard methodology of sampling respondents from its large panel and propensity scores to match recent U.S. Census distributions of gender, age, race, education, and region. Potential respondents are recruited through a variety of means to opt in to join the YouGov panel. The firm completed interviews with 3,241 respondents and then reduced it via matching to a final sample of 3,000. As a result of this methodology, a traditional response rate cannot be computed. As we note below, item nonresponse is almost nonexistent. All of our analyses are weighted by a poststratification weight generated by YouGov to reflect a four-way distribution of age, race, gender, and education as well as 2016 vote choice.

The dataset includes a standard set of demographic and attitudinal variables including self-reported age, gender, race, educational attainment, family income, party identification, ideology, interest in political news, vote choice in the 2016 election, and several measures of religious beliefs and practices.
To elicit stated beliefs about women in public office, we asked respondents to estimate what share of seats in Congress and their home state legislatures were held by women. The question about Congress mimics the one asked in previous studies. The similarly constructed state legislature question is implemented for what may be the first time. Although knowledge of state politics follows similar patterns to knowledge of national politics, a state focus is helpful because of the greater variation in actual prevalence of women in office and because the gender gap in knowledge is muted at the state level compared to national politics (Lyons, Jaeger, and Wolak 2012). The exact question wordings used in our survey are as follows: (1) About what percentage of seats in the U.S. Congress is currently held by women? Please answer with your best guess. (2) About what percentage of seats in the state legislature in your state is currently held by women? Please answer with your best guess.

Responses to these questions were provided using a “slider” that ranged from 0 percent to 100 percent. Using a slider rather than a text box to enter numeric values was intentional: it reminds respondents that the question is asking about percentages rather than raw numbers of seats, ensures that answers fall within the range of what is logically possible, avoids typos and other ambiguous responses that result from manual entry, and maximizes item response rates to minimize differential guessing. The political institution of interest was underlined to emphasize that the estimate should be specific to the chamber. The order of these two questions was also randomized to mitigate the effects of one answer contaminating the other. Responses to these questions are key parts of the dependent variables in our analysis.

Because respondents’ perceptions should be influenced by their personal experiences, we subsequently asked respondents whether they remembered having been represented by a woman either in Congress or in their state legislatures. Our survey asked about the institutions separately and encouraged respondents to admit if they did not know, a presumably common experience. The order of these Congress and state legislature questions was also randomized to mitigate the effects of one answer contaminating the other.

2. Men are more likely to guess about political knowledge questions when they are uncertain of the answer. As a result, a best practice is to encourage guessing to mitigate the artifactual gender gap in political knowledge identified by Mondak and Anderson (2004). Because the question did not offer a specific “don’t know” option, few respondents skipped the question without hazarding a guess. Out of 3,000 respondents surveyed, only five skipped the Congress question and only three skipped the state legislature question.

3. It is possible that respondents had in mind the House, the Senate, or both chambers together when answering these questions. Fortunately, at the time of our survey these distinctions should not have mattered much. The percentage female was 23.4 percent in the House, 25.0 percent in the Senate, and 23.7 percent in the full Congress.
The exact question wordings and options presented to our respondents are as follows.

The first question asked: “Do you happen to remember if at some point you have been represented by a member of Congress who is a woman?” Respondents selected one of the following answers: (1) Yes, I believe I have been represented by a female member of Congress; (2) No, I do not believe that I have been represented by a female member of Congress; (3) I am not sure if I have been represented by a female member of Congress.

The second question asked: “Do you happen to remember if at some point you have been represented by a member of your state’s legislature who is a woman?” Respondents chose from one of the following answers: (1) Yes, I believe I have been represented by a female member of the state legislature; (2) No, I do not believe that I have been represented by a female member of the state legislature; (3) I am not sure if I have been represented by a female member of the state legislature.

We do not believe that these questions are likely to reflect objective reality closely. Although an experience of a female officeholder might be easy for some respondents to recall, studies have shown that respondents do not know much about their current elected officials (Delli Carpini and Keeter 1996). People are probably less likely to recall perfectly the characteristics of past representatives, even basic nameless information such as gender. Even without knowing the origin of these beliefs, we suspect that they anchor estimates about how many women are in elected office more generally. Respondents who believe they were represented by women at some point are likely to extrapolate out and consider that the experience is more common. We also augmented the data by coding the percentage of seats held by women in the legislature where each respondent resides as a measure of objective exposure to women in that office. In subsequent analyses we also consider whether experiences with female officeholders at one level of government might influence beliefs about the prevalence of women in office at another level of government.

**Public Beliefs about the Prevalence of Women in Office**

Figure 1 displays histograms of responses to the question about what share of seats in Congress or a respondent’s state legislature are held by women. The wide variation and asymmetry in beliefs are apparent in the figure. Estimates of the percent of Congress that is female occupy the full range from 0 to 100, with a mean of 38 percent and a median of 35 percent. The

4. Estimates at the low end of the scale near 0 percent and especially near the high end of the scale near 100 percent may be surprising, but such extreme estimates are common in studies cited above that ask respondents to estimate percentages such as the share of women in office or the
Figure 1. Public beliefs about prevalence of women in elected office.
true value is 24 percent, so respondents on average overestimate by 14 percentage points, an exaggeration by more than half. Indeed, overestimating is far more common than underestimating, as more than 80 percent of respondents overstate the true value. Moreover, about half of respondents estimated a value at least 10 percentage points higher than the truth; one in five respondents believe that women hold a majority of seats. The average American thus believes that women are much closer to achieving parity in representation than they actually are. In contrast to some earlier research that recoded responses into a small number of categories, we do not view the public as being approximately correct in most cases.

Public beliefs about women in state legislatures tend to be more accurate than for Congress. But the greater accuracy might be serendipitous merely because women happen to make up a larger share of state legislators than they do members of the U.S. House (29 percent versus 24 percent). It is not because respondents have a good sense of how well women are represented in their states. There is an extremely weak correlation of 0.11 between the actual share of seats held by women in a state legislature and the respondent’s estimate of the percentage. The correlation does not rise as high as 0.20 even if the analysis is limited to college graduates or respondents who express the highest level of political interest.

Because respondents estimate slightly lower percentages in state legislatures, it is possible that people are drawing on different information in thinking about women in the two institutions. However, this does not appear to be the norm. The correlation between the congressional and state legislative beliefs is 0.73, indicating that respondents are not strongly differentiating between the two bodies. This suggests that individual-level characteristics rather than objective information about women in office are likely to be more important determinants of what people believe about the prevalence of women in office. The analysis below identifies variables that contribute to erroneous public estimates. Our goal here is not to catalogue all of the potential factors that underlie public beliefs, but to show how those beliefs vary with age in ways that may distort how values are connected to political expression.

Modeling Public Beliefs

Having observed high levels of misinformation and little public consensus about the degree of women’s representation in legislative office, we now turn to multivariate analysis to explore factors that influence public beliefs.

sizes of various demographic groups in the population. Estimates at both ends of the scale appear even when limiting the analysis to respondents with high levels of political interest or educational attainment.
Following Ansolabehere, Meredith, and Snowberg (2013), we distinguish between two measures of correctness: bias, which is the raw difference between the respondent’s estimate and truth, and accuracy, which is the absolute value of the difference. Here we report multivariate regression models of bias to identify the variables underlying public misperceptions. Parallel models of accuracy are reported in the Supplementary Material and produce nearly identical results. As shown in figure 1, the average bias in beliefs is 14.4 points for Congress and 5.5 points for state legislatures, and the average accuracy in beliefs is 16.7 points and 14.7 points, respectively.

The models include an array of variables drawn from existing research on political knowledge generally as well as specific studies of public estimates of numeric quantities and facts of particular relevance to women. Question wordings and summary statistics are provided in the Supplementary Material. The models start with the demographic variables of gender, race, ethnicity, college education, and age that have been shown to affect political knowledge (Delli Carpini and Keeter 1996).5

Next, the models include measures of party identification and ideology, operationalized in different ways. Our preliminary exploration of bivariate relationships showed no evidence of expressive responding or asymmetry between Democrats and Republicans, but instead greater accuracy among both kinds of partisans compared to independents. Party ID is thus folded into a unipolar four-point scale so that it measures the strength of partisanship, running from pure independents to strong partisans. In contrast, ideology is entered in its original form as a five-point scale ranging from “very liberal” to “very conservative.” There also is a variable indicating whether religion is “very important” in the respondent’s life. We expect these variables to represent the respondent’s values about the desired role of women in society, as research has shown that sexism is correlated with both overall conservatism and more devout religious views (e.g., Valentino, Wayne, and Oceno 2018). The model also includes a control for political awareness, measured as whether the respondent is interested in political news “most of the time.”

Finally, two variables capture experiences with women in office. The state legislature model includes the actual percentage of seats held by women in the legislature of the respondent’s state. To the degree that beliefs reflect reality, this variable should be a significant determinant. Both models include the two questions described above asking whether the respondent believes to have been represented by a woman in that legislative body “at some point.”6 Whether these memories are correct or not is interesting but somewhat beside

5. When measuring gender, the survey only permitted respondents to identify as either male or female.
6. “Not sure” is the excluded reference category.
the point for our study. They represent a local understanding or personal experience from which respondents might generalize outward.

To our knowledge, the questions asking whether the respondents believe they were represented by women have never been asked in large-scale surveys. For both Congress and state legislatures, nearly 40 percent of people believe they were represented by female legislators at some point. Approximately one-quarter believe they were not represented by women, and the remaining one-third were not sure. Although the aggregate distributions of the two questions are similar, respondents appear to differentiate their beliefs about the two levels of government. Fewer than half of them give consistent “yes” or “no” responses, and only one-quarter respond “not sure” to both items. Belief that one has been represented by a woman at some point increases with age, a reflection of a greater variety of representational experiences among people who have lived longer.

The multivariate regression models seek to explain beliefs about the prevalence of women in office, with a focus on the effects of age. Because two dependent variables are strongly correlated, we suspect that some unmeasured factors might affect both of them. To account for this, we estimate seemingly unrelated regression (SUR) models in which the error terms in the two equations may be correlated, as revealed by an estimated rho parameter. Because the models include slightly different sets of regressors, the SUR estimates should be more efficient than would be estimates from two separate ordinary least squares regressions.

**Regression Results**

Table 1 reports the results of the baseline models designed to explain public beliefs about the prevalence of women in Congress and state legislatures. Because the coefficients are from a basic linear regression, it is possible to use the descriptive statistics provided in the Supplementary Material to immediately determine the substantive influence of each variable. Several findings from the analysis are noteworthy.

First, and of greatest interest here, is a tendency for the young to overestimate how many women are in office, especially in state legislatures. This result is notable in part because it appears despite controlling for interest in politics, which is known to result in older people being more knowledgeable. Although young people in contemporary America generally report more egalitarian attitudes about sex roles and express stronger support for increasing the number of women in office, their enthusiasm for these views appears to be tempered by misinformation. The average American overestimates how many women are in office by a substantial amount, and young people’s beliefs are even more biased. We will return to discuss the magnitude and impact of the age effect below.
Table 1. Explaining bias in beliefs about prevalence of women in elected office.

|                           | Congress            | State legislature |
|---------------------------|---------------------|-------------------|
|                           | Coefficient (SE)    | p value           |
| Age                       | -0.12 (0.02)        | <0.01             |
|                           | 1.96 (0.68)         | <0.01             |
| Female                    | 5.53 (1.09)         | <0.01             |
| Black                     | 6.13 (1.03)         | <0.01             |
| College education         | -3.65 (0.70)        | <0.01             |
| Income under $40,000      | 1.05 (1.13)         | 0.35              |
| Income $40,000–$80,000    | 0.46 (1.17)         | 0.69              |
| Income over $80,000       | 0.12 (1.21)         | 0.92              |
| Strength of party identification | 1.19 (0.30) | <0.01             |
| Ideology                  | 0.86 (0.28)         | <0.01             |
| Religion very important   | 3.37 (0.72)         | <0.01             |
| Political interest        | -0.87 (0.73)        | 0.24              |
| Believes was represented  | 1.89 (0.65)         | <0.01             |
| by female MC              | 0.31 (0.70)         | 0.66              |
| Believes was not          | -                   |                   |
| represented female MC     | 3.13 (0.66)         | <0.01             |
| Believes was represented  | -                   |                   |
| by female state legislator| 0.23 (0.72)         | 0.75              |
| Believes was not          | -                   |                   |
| represented female state legislator | - |                   |
| Percent women in state legislature | - | -0.68 (0.04) | <0.01         |
| Constant                  | 34.28 (1.94)        | <0.01             |

Rho | 0.71
N   | 2,691
Second, college education and a high level of interest in politics produce less biased (i.e., lower) estimates, but the effects are of modest magnitude, ranging from one to four percentage points. Reformers hoping to improve public knowledge often point to efforts designed to enhance formal education or public interest, yet these appear to have minimal effect when it comes to knowing how successful women have been in winning public office. At least in this domain, misinformation appears to be heavily rooted in other individual characteristics.

Third, knowledge varies by several well-established demographic characteristics but also along other lines of cleavage that have not previously been detected. For example, consistent with other studies such as Delli Carpini and Keeter (1996), black and Hispanic respondents have less correct knowledge than do whites, overestimating the percentage of women in office by several percentage points. Although it is not the focus of our study, these racial and ethnic gaps in apparent knowledge deserve more scrutiny to assess the degree to which they stem from cultural biases (Abrajano 2015), are filtered through personal experiences (Cramer and Toff 2017), or are unique to particular domains of politics that are more relevant to whites (Cohen and Luttig forthcoming). It is possible that a model accounting for more contextual variables would be able to account for some of the racial disparities that we observe. Contrary to many other domains, a respondent’s gender has a small or even insignificant effect. This is consistent with Dolan’s (2011) analysis showing that women are just as knowledgeable as men in areas where knowledge is most “gender-relevant.”

Perhaps most surprising are the effects of ideological and religious values. People who identify as politically conservative or who say that religion is an important part of their lives show greater bias in beliefs. This is unlikely to be a case of expressive responding as it is normally conceptualized, because religious conservatives are generally less enthusiastic than others about electing more women to office. Those with more traditional views about women would have reported lower percentages if they wished that politics were more dominated by men. It is possible that people with conservative orientations are misinformed to a greater degree than others because of the kind of communications they receive from other people and the media that lead them

7. The effects of age and other variables remain similar even if the models are run after excluding nonwhite respondents.
8. This pattern also appears if we substitute other measures of religiosity such as frequency of church attendance or identification as a born-again Christian.
9. Our survey does not include any direct measures of gender bias or sexism attitudes. However, the same questions about the estimation of women legislators were administered in a survey we conducted in Japan, which included a series of questions measuring sexism attitudes directly. Results showed the same pattern of decreasing misinformation with age, even after controlling for sexism attitudes and partisanship.
to believe there are more women in office. Alternatively, these individuals may be intentionally reporting higher estimates to convey that liberal concerns about the need to elect more women are inflated. This is a somewhat different form of expressive responding than the standard account of partisan cheerleading would expect.

Fourth, some evidence suggests that people extrapolate outward from their own experiences. Compared to those who are not sure, people who believe they have been represented by female legislators at some point report higher estimates for both Congress and state legislatures. Because the vast majority of respondents are overestimating women’s prevalence in these offices, outward extrapolation ironically means that awareness of women representatives actually leads to greater bias. In addition, there is at least a loose responsiveness of a person’s beliefs about women in their state legislature with the actual representation of women there. The model indicates that for every 10-point increase in actual seats held, bias in beliefs is actually reduced by almost seven percentage points. The Supplementary Material shows that experiences with women officeholders at one level of government also appear to bleed over into beliefs about other levels of government. For example, a reported memory of a female state legislator actually exacerbates bias in beliefs about women in Congress.

Fifth, bias increases as partisan attachments become stronger. Going from the lowest category of a pure independent to a strong partisan raises estimates by about three percentage points. We suspect that this bias has something to do with consumption of political information from media and peers, a point we discuss at more length in the conclusion. For all the criticism that independents take for being uninformed and unengaged, these results show that it is partisans who get it wrong more often. And their error is not random but instead systematically tends toward overestimation. This is the case even after controlling for age, education, and interest, all factors that are associated with stronger partisanship. This pattern of the “ends against the middle” is certainly not a case of expressive responding.

We now return to the discussion of age and beliefs about the election of women. To demonstrate the effects of age with other factors held constant, figure 2 displays the predicted bias in beliefs about women in Congress and their state legislatures. Gray lines indicate the 95 percent confidence intervals around the predictions. The dotted horizontal lines show the state of no bias (i.e., no difference from the true values that respondents are asked to

10. The range of this variable is from 13.8 percent to 52.4 percent, and it has a standard deviation of 7.2 percentage points.
Figure 2. Effect of age on bias in beliefs about prevalence of women in elective office.
Across the full range of ages observed in our survey (from 18 to 89), the total effect of aging is to reduce bias by 8.5 points for Congress and 13.5 points for state legislature. For Congress, age reduces bias by half. For state legislatures, the decline is even larger and is large enough that the oldest respondents have unbiased beliefs on average.

Our baseline model reveals that correctness of beliefs did not differ materially between men and women. This null finding might be surprising for two reasons. On the one hand, women might be thought to have more natural interest in representation of their own gender and might attend to this kind of information more intently. On the other hand, many studies show that women generally have lower levels of factual knowledge about politics, a pattern that could lead men to be more accurate on average. However, our finding of negligible overall differences in the beliefs of men and women might mask important differences in how men and women come to those estimates. That is, although the means might be similar, the factors that produce those means might differ, but in a way that essentially “cancels out.”

We explore this possibility by estimating our baseline model separately for male and female respondents (necessarily removing the independent variable indicating gender from the models). The regression table is shown in table A2 in the Supplementary Material. The results illuminate ways in which men and women are both similar and different in how they generate beliefs. Focusing on the key variable of age, figure 3 shows how age influences beliefs about women in office differently for male and female respondents. Namely, the age effect is stronger among men than among women. As they age, the bias in women’s estimates about Congress declines by four percentage points while their beliefs about state legislatures improve by 12 points. The equivalent figures for men are 12 points and 16 points, respectively.

In addition to the steeper age gradient among men, men become significantly more accurate in their beliefs as a result of higher levels of political interest and educational attainment. This is consistent with other research showing that, in terms of political knowledge, women get less “return” from education than do men (Dow 2009). Women get almost no return from political interest or education to improve their knowledge about the representation of women. Instead, they appear to rely more on the strength of party

---

11. For state legislatures, the true value is the mean percentage of women across all state legislatures. Setting aside extreme values—those below the fifth percentile and above the 95th percentile—weaken but does not eliminate the effects of age.

12. The model’s linear specification seems to be a reasonable portrayal of the relationship between age and respondent’s beliefs. Figure A1 shows some evidence that a weak quadratic fit might also be appropriate, but the general pattern of decreasing bias with age still holds. Figure A2 in the Supplementary Material demonstrates that the age variable is well distributed so that the estimates are not vulnerable to areas with little data.
Figure 3. Effect of age on bias in beliefs about women in elective office by gender.
identification and ideological position, both of which have only minimal effects on men’s knowledge. It seems that men and women have equivalent levels of misinformation as young adults, but that men’s knowledge improves more sharply as both groups become older.

Conclusion

The American public has only a rough sense of how prevalent women are in key political institutions and significantly overestimates the success of women in winning office. Moreover, personal memories of having been represented by a woman make beliefs less rather than more accurate. Misinformation about descriptive representation is disconcerting because research shows that people who overestimate how successful women have been in getting elected express less support for electing more women to office (Sanbonmatsu 2003; Dolan and Sanbonmatsu 2009). As the share of women in office presumably approaches 50 percent in the coming years, an interesting question for future research is whether public beliefs operate differently near this tipping point. If public preferences act like a “thermostat” (e.g., Wlezien 1995) and respond to reality only by approximately adjusting upward and downward rather than around precise truths, then there might be a reversal in opinions, especially among the young, as women approach parity in public office.

The specific impacts of partisan strength and ideology on beliefs about women’s descriptive representation suggest that differences in political knowledge are not merely “expressive responding” but are due in part to selective exposure to and retention of political information. It is possible that the general tendency to overestimate is due to the media giving disproportionate attention to female politicians, or that coverage of women is easier to recall. In their study examining the volume of media coverage of members of Congress, Wagner and Grusczynski (2018) found that women in the House received only slightly less media coverage than their male colleagues (a difference of 1.2 articles where the mean coverage is 27 articles, or just 4 percent). In contrast, women in the Senate were much more likely to be covered, receiving 25 more articles on an average of 151, an overrepresentation of 17 percent. If women politicians are also more memorable because they are novel or unexpected given the stereotypes of politicians as being mostly male, then even proportionate coverage of male and female politicians could nonetheless contribute to memories that overrepresent women.

The public and especially this key group—the young—would presumably become more alarmed and energized if their misinformation was corrected, and in this sense alone “ignorance is bliss.” The rose-colored views of young people are not due to lower political interest, less formal education, weaker partisanship, or even less personal experience having been represented by
women, although these are contributors to those beliefs. While a cross-sectional survey such as ours cannot distinguish whether the age gradient is a life-cycle, generational, or cohort effect, and thus how the pattern might resolve itself in the distant future, in contemporary politics it is clear that the young are key drivers of misinformation of a particular type and that bias is not likely to disappear anytime soon.

Greater misinformation among the young exacerbates the greater difficulty young people have in connecting their values to their political preferences. Older people are more likely to “vote correctly” than are young people (Lau, Andersen, and Redlawsk 2008), but the disparity is not merely a reflection of lesser effort among younger people. In a study designed to motivate respondents to put in more effort to report accurate factual estimates, Prior and Lupia (2008) offered monetary compensation and longer time frames for responses. Although these incentives increased accuracy overall, young respondents were the only cohort that did not improve in performance. This suggests that age differences in knowledge are actually muted in standard surveys such as ours. Facilitating more effort would presumably improve correctness among older respondents more, thus exacerbating age differences in beliefs about women in office. In addition, evidence suggests that disparities in political knowledge among the young and old have actually become more severe over the past half century (Wattenberg 2016), suggesting that the problem is not going to resolve itself.

Finally, our results raise the question of whether misperceptions about women in office have spillover effects in influencing other political activities in the electorate. Several studies suggest that having more women or minorities in Congress encourages women and minority constituents to vote, trust government, and run for office (Burns, Schlozman, and Verba 2001; Gay 2002; Banducci, Donovan, and Karp 2004; Campbell and Wolbrecht 2006; cf. Broockman 2014). These analyses are based on objective measures of seats held by various groups, but it seems plausible that perceptions could matter more than reality. It will take additional research to investigate whether beliefs about women in office—either generally or in one’s jurisdiction—matter more or less than the reality. If beliefs are more important than reality, the widespread overestimation of women in public office may have a surprising upside in motivating more women to vote, trust government, and run for office than it would if they had accurate information.

**Supplementary Material**

SUPPLEMENTARY MATERIAL is freely available at Public Opinion Quarterly online.
References

Abrajano, Marisa. 2015. “Reexamining the ‘Racial Gap’ in Political Knowledge.” *Journal of Politics* 77:44–54.

Alba, Richard, Rubén G. Rumbaut, and Karen Marotz. 2005. “A Distorted Nation: Perceptions of Racial/Ethnic Group Sizes and Attitudes Toward Immigrants and Other Minorities.” *Social Forces* 84:901–19.

Ansolabehere, Stephen, Marc Meredith, and Erik Snowberg. 2013. “Asking About Numbers: Why and How.” *Political Analysis* 21:48–69.

Baker, John R., Linda L. M. Bennett, Stephen E. Bennett, and Richard S. Flickinger. 1996. “Citizens’ Knowledge and Perceptions of Legislatures in Canada, Britain, and the United States.” *Journal of Legislative Studies* 2:44–62.

Banducci, Susan A., Todd Donovan, and Jeffrey A. Karp. 2004. “Minority Representation, Empowerment, and Participation.” *Journal of Politics* 66:534–56.

Bennett, Stephen Earl, and Linda L. M. Bennett. 1993. “Out of Sight, Out of Mind: Americans’ Knowledge of Party Control of the House of Representatives, 1960–1984.” *Political Research Quarterly* 46:67–80.

Broockman, David E. 2014. “Do Female Politicians Empower Women to Vote or Run for Office? A Regression Discontinuity Approach.” *Electoral Studies* 34:190–204.

Bullock, John G., Alan S. Gerber, Seth J. Hill, and Gregory A. Huber. 2015. “Partisan Bias in Factual Beliefs about Politics.” *Quarterly Journal of Political Science* 10:519–78.

Burden, Barry C., Yoshikuni Ono, and Masahiro Yamada. 2017. “Reassessing Public Support for a Female President.” *Journal of Politics* 79:1073–78.

Burns, Nancy, Kay Lehman Schlozman, and Sidney Verba. 2001. *The Private Roots of Public Action: Gender, Equality, and Political Participation*. Cambridge, MA: Harvard University Press.

Campbell, David E., and Christina Wolbrecht. 2006. “See Jane Run: Women Politicians as Role Models for Adolescents.” *Journal of Politics* 68:233–47.

Citrin, Jack, and John Sides. 2008. “Immigration and the Imagined Community in Europe and the United States.” *Political Studies* 56:33–56.

Cohen, Cathy J., and Matthew D. Luttig. Forthcoming. “Reconceptualizing Political Knowledge: Race, Ethnicity, and Carceral Violence.” *Perspectives on Politics*.

Cramer, Katherine J., and Benjamin Toff. 2017. “The Fact of Experience: Rethinking Political Knowledge and Civic Competence.” *Perspectives on Politics* 15:754–70.

Delli Carpini, Michael X., and Scott Keeter. 1996. *What Americans Know about Politics and Why It Matters*. New Haven, CT: Yale University Press.

Dolan, Kathleen. 2004. *Voting for Women: How the Public Evaluates Women Candidates*. Boulder, CO: Westview Press.

Dolan, Kathleen. 2011. “Do Women and Men Know Different Things? Measuring Gender Differences in Political Knowledge.” *Journal of Politics* 73:97–107.

Dolan, Kathleen, and Kira Sanbonmatsu. 2009. “Gender Stereotypes and Attitudes Toward Gender Balance in Government.” *American Politics Research* 37:409–28.

Dow, Jay K. 2009. “Gender Differences in Political Knowledge: Distinguishing Characteristics-Based and Returns-Based Differences.” *Political Behavior* 31:117–36.

Gay, Claudine. 2002. “Spirals of Trust? The Effect of Descriptive Representation on the Relationship between Citizens and Their Government.” *American Journal of Political Science* 46:717–32.

Graham, Matthew H. 2020. “Self-Awareness of Political Knowledge.” *Political Behavior* 42:305–26.

Haider-Markel, Donald P., and Mark R. Joslyn. 2018. “Not Threat, but Threatening: Potential Causes and Consequences of Gay Innumeracy.” *Journal of Homosexuality* 65:1527–42.
Hibbing, John R., and Elizabeth Theiss-Morse. 1995. *Congress as Public Enemy: Public Attitudes toward Public Institutions*. New York: Cambridge University Press.

Horowitz, Juliana Menasce, Ruth Igielnik, and Kim Parker. 2018. Women and Leadership 2018. Pew Research Center. Available at https://www.pewsocialtrends.org/2018/09/20/women-and-leadership-2018/.

Kuklinski, James H., Paul J. Quirk, Jennifer Jerit, David Schwieder, and Robert F. Rich. 2000. “Misinformation and the Currency of Democratic Citizenship.” *Journal of Politics* 62: 790–816.

Landy, David, Brian Guay, and Tyler Marghetis. 2018. “Bias and Ignorance in Demographic Perception.” *Psychonomic Bulletin and Review* 25:1606–18.

Lau, Richard R., David J. Andersen, and David P. Redlawsk. 2008. “An Exploration of Correct Voting in Recent U.S. Presidential Elections.” *American Journal of Political Science* 52:395–411.

Lawrence, Eric D., and John Sides. 2014. “The Consequences of Political Innumeracy.” *Research and Politics* 1:1–8.

Lupia, Arthur. 2006. “How Elitism Undermines the Study of Voter Competence.” *Critical Review* 18:217–32.

Lyons, Jeffrey, William P. Jaeger, and Jennifer Wolak. 2012. “The Roots of Citizens’ Knowledge of State Politics.” *State Politics & Policy Quarterly* 13:183–202.

Martinez, Michael D., Kenneth D. Wald, and Stephen C. Craig. 2008. “Homophobic Innumeracy? Estimating the Size of the Gay and Lesbian Population.” *Public Opinion Quarterly* 72:753–67.

Mondak, Jeffery J., and Mary R. Anderson 2004. “The Knowledge Gap: A Reexamination of Gender-Based Differences in Political Knowledge.” *Journal of Politics* 66:492–512.

Nadeau, Richard, Richard G. Niemi, and Jeffrey Levine. 1993. “Innumeracy about Minority Populations.” *Public Opinion Quarterly* 57:332–47.

Nyhan, Brendan, and Jason Reifler. 2010. “When Corrections Fail: The Persistence of Political Misperceptions.” *Political Behavior* 32:303–30.

Ono, Yoshikuni, and Barry C. Burden. 2019. “The Contingent Effects of Candidate Sex on Voter Choice.” *Political Behavior* 41:583–607.

Pampel, Fred. 2011. “Cohort Changes in the Socio-Demographic Determinants of Gender Egalitarianism.” *Social Forces* 89:961–82.

Peterson, Johnathan C., Kevin B. Smith, and John R. Hibbing. 2020. “Do People Really Become More Conservative as They Age?” *Journal of Politics* 82:600–611.

Prior, Markus, and Arthur Lupia. 2008. “Money, Time, and Political Knowledge: Distinguishing Quick Recall and Political Learning Skills.” *American Journal of Political Science* 52:169–83.

Prior, Markus, Gaurav Sood, and Kabir Khanna. 2015. “You Cannot be Serious: The Impact of Accuracy Incentives on Partisan Bias in Reports of Economic Perceptions.” *Quarterly Journal of Political Science* 10:489–518.

Sanbonmatsu, Kira. 2003. “Gender-Related Political Knowledge and the Descriptive Representation of Women.” *Political Behavior* 25:367–88.

Schaffner, Brian F., and Samantha Luks. 2018. “Misinformation or Expressive Responding? What an Inauguration Crowd Can Tell Us about the Source of Political Misinformation in Surveys.” *Public Opinion Quarterly* 82:135–47.

Sigelman, Lee, and Richard G. Niemi. 2001. “Innumeracy about Minority Populations: African Americans and Whites Compared.” *Public Opinion Quarterly* 65:86–94.

Stauffer, Katelyn E. 2019. “The Sum of Its Parts? Women’s Collective Representation and American Attitudes towards Institutions.” *Unpublished manuscript*, University of South Carolina.
Valentino, Nicholas A., Carly Wayne, and Marzia Oceno. 2018. “Mobilizing Sexism: The Interaction of Emotion and Gender Attitudes in the 2016 US Presidential Election.” Public Opinion Quarterly 82:799–821.

Wagner, Michael W., and Mike Gruszczynski. 2018. “Who Gets Covered? Ideological Extremity and News Coverage of Members of the U.S. Congress, 1993 to 2013.” Journalism and Mass Communication Quarterly 95:670–90.

Wattenberg, Martin P. 2016. Is Voting for Young People? 3rd ed. New York: Routledge.

Wlezien, Christopher. 1995. “The Public as Thermostat.” American Journal of Political Science 39:981–1000.

Wong, Cara J. 2007. “‘Little’ and ‘Big’ Pictures in Our Heads: Race, Local Context, and Innumeracy About Racial Groups in the United States.” Public Opinion Quarterly 71: 392–412.