Political Lie Detection

Jonathan Woon*
University of Pittsburgh

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Abstract

Does the mass public have the ability to judge when politicians lie to them? Can citizens accurately judge the veracity of what politicians say, discerning true from false statements? In short, does the truth matter? I elicit truth perceptions in a novel statement rating task, asking respondents to judge the veracity of real statements from politicians, and I experimentally investigate how the availability of source cues affect these perceptions. Comparing perceptions to the evaluations of an independent, fact-checking organization, I find that perceptions track the truth. While source cues increase polarization, they do not substantially diminish this relationship, except in the case of highly polarizing speakers. Overall, the results suggest that political lie detection is possible through the aggregation of individual perceptions, even in the face of formidable partisan forces.

*Associate Professor, Department of Political Science, Department of Economics (secondary), and Pittsburgh Experimental Economics Laboratory, woon@pitt.edu, 4437 Wesley W. Posvar Hall, Pittsburgh, PA, 15260.

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Politicians are not known for their fidelity to the truth. They exaggerate their qualifications for office and the benefits of their preferred policies. They use facts selectively and out of context to promote partisan agendas and to denigrate the opposition. When accused of wrongdoing, they construct carefully worded denials. Sometimes, they flat out lie. Bill Clinton "did not have sexual relations with that woman." Richard Nixon categorically denied any knowledge of the Watergate burglary. Donald Trump and his surrogates just make stuff up, consistently contradicting their own previous statements. If lying is widely expected, then honesty is all the more celebrated as a virtue because it is rare. Indeed, in American political culture, great presidents are believed to be fundamentally honest. Abraham Lincoln is "Honest Abe." A young George Washington supposedly admitted to chopping down his father's cherry tree, resolutely declaring "I cannot tell a lie."[1] While citizens may prize honesty and abhor deception, are they capable of assessing the veracity of what politicians say? To what extent can citizens distinguish between statements that are true and those that are false? Does perceived truthfulness depend on the underlying truth of the statements themselves or on cues such as the speaker's reputation and partisanship?

The capacity to detect deception is a critical social skill. Evolutionary psychologists argue that social cooperation is made possible, in large part, by cognitive mechanisms that allow humans to rapidly detect cheaters and violations of social norms (Cosmides 1989, Cosmides and Tooby 1992). Evidence from economics experiments suggests that observers can predict trustworthiness from promises made in high-stakes prisoners' dilemmas (Belot, Bhaskar and Van De Ven 2012) and that subjects who play strategic communication games understand that speakers exaggerate, thereby allowing listeners to decode the underlying truth (Minozzi and Woon 2013, 2016). Detecting deception is especially salient in the context of criminal justice, but psychology research suggests that accuracy rates in detection are barely over chance and that catching lies depends more on the fact that some people are poor liars rather than differences individual ability in lie detection (Bond and DePaulo 2008,

[1]While this story is widely known and often repeated, it was a myth propagated by one of Washington's first biographers, Mason Locke Weems, which likely helped increase sales of his book (Lengel 2010).

Vrij 2008). A range of social science research therefore suggests that people have some capacity for assessing the veracity of messages, though it also suggests that success may be limited.

Lie detection is important in politics, too. If citizens are capable of detecting political lies, then they have tools that enable them to guard against manipulation and persuasion by elites. Competently judging the veracity of a candidate's statements also provides a basis for assessing honesty, supplying the means with which to select candidates with favorable valence characteristics (McCurley and Mondak 1995, Stone and Simas 2010) and establishing trust between representatives and their constituents (Fenno 1978). If citizens can adequately detect false claims and punish politicians at the polls accordingly, then penalties for lying potentially limit mendacity in the public sphere (Lupia and McCubbins 1998) and contribute to democracy's epistemic properties (Landemore 2013). On the other hand, the inability to detect political lies can be detrimental to democratic practice. If exaggeration and fabrication go unchecked, then any benefits of deliberation and the free exchange of ideas are severely diminished, and the legitimacy of representative institutions is imperiled by the lack of trust between the public and politicians. Political lie detection is therefore an important, yet previously overlooked, component of democratic competence.

Despite its significance, no previous research directly addresses citizens' capacity for lie detection in the political sphere. A substantial body of work, however, presents a discouraging portrait of citizens who are generally *incompetent* in carrying out their democratic responsibilities (Achen and Bartels 2016). It is well established that many citizens are not only overwhelmingly ignorant (Delli Carpini and Keeter 1996), but also misinformed about basic political facts and policies (Kuklinski et al. 2000). They also hold beliefs lacking consistency and constraint (Converse 1964, Zaller 1992) and attitudes at odds with those they would hold if they were less ignorant (Bartels 1996, Gilens 2001). Although political heuristics might provide cognitive shortcuts for citizens to use to overcome deficiencies in knowledge (Lau and Redlawsk 2001, Lupia 1994, Popkin 1991), over-reliance on heuristics also tends

to generate systematic biases and decision errors (Dancey and Sheagley 2013, Kahneman, Slovic and Tversky 1982, Kahneman 2011).

Recent research on political information does little to dispel this negative assessment of citizen competence. Studies of the dynamics of false beliefs and rumors show that correcting misinformation and its consequences is quite difficult. For example, Nyhan and Reifler (2010) attempt to correct misinformation about the Iraq War and find that doing so does not eliminate misperceptions and can even have a backfire effect.[2] Berinsky (2015) shows that dispelling rumors about Obamacare "death panels" is possible if the corrections come from unlikely sources, but that merely repeating a rumor strengthens it. Using scenarios with hypothetical candidates, Thorson (2016) demonstrates that the attitudinal consequences of misinformation persist even when the information itself is successfully corrected. The prevalence and persistence of false beliefs suggests that a sizable swath of the mass public is unable to distinguish between fact and fiction. But there is a silver lining: false beliefs are typically held by a small, but intense, minority or subgroup. It is therefore encouraging that most people do indeed recognize rumors as false. However, these studies focus on information processing and the difficulties of correcting false beliefs, so we do not know whether perceptions or the degree to which citizens engage in motivated reasoning (e.g., Taber and Lodge 2006) will vary with the underlying truth.[3]

A related area of research, no less discouraging, examines partisanship and factual beliefs. Partisans give different answers to survey questions about a variety of politically-relevant facts (Jerit and Barabas 2012). Surprisingly, this includes facts about objective conditions such as inflation and unemployment (Ansolabehere, Meredith and Snowberg 2013, Bartels 2002). These findings suggest that Democrats and Republicans perceive different po-

[2]Recent evidence suggest that the backfire effect may be limited. Studying a wide variety of issues, Wood and Porter (2016) find that the backfire effect is specific to the issue of Iraq and weapons of mass destruction. Nyhan et al. (2017) study corrections of misleading claims made by Donald Trump during the 2016 election and find that while corrections are effective in reducing misperceptions, even among Trump's supporters, attitudes toward Trump himself were unaffected.

[3]One exception is Swire et al. (2017), whose experiments compare information processing of perceptions of accurate versus inaccurate claims made by Donald Trump.

litical "realities," or at least selectively attend to different sources and pieces of information—partisanship powerfully shapes political perceptions and knowledge.[4] If partisans can't agree on basic facts, then it seems even less likely that they could agree on what constitutes the truth. This line of work suggests that the public's capacity for political lie detection may be limited and, in any case, likely to be undermined by strong forces of political competition and partisan identification.

This study makes a novel contribution to our understanding of citizen competence and political knowledge by assessing the extent to which citizens can discriminate between truth and lies and the extent to which partisanship affects this capacity. But studying political lie detection faces an important methodological problem: How does a researcher, let alone a citizen or survey respondent, know when a politician is lying or telling the truth? Indeed, the truth is contested, especially in politics. Without delving into deep philosophical complexities about the nature of truth or constructing a coding scheme and applying my own subjective judgment or that of a research team, I rely on evaluations made by a fact-checking organization (PolitiFact) of real statements made by real politicians (Bucciol and Zarri 2013, Nyhan and Reifler 2014). Although it is, of course, impossible to eliminate the need for human judgment entirely, this approach has several strengths: the statements are extensively researched, their truthfulness is assessed by a third-party, and each evaluation is supported by a publicly-stated rationale.

With a reliable external measure of the underlying truth in hand, I investigate the quality of truth perceptions. In contrast to the public's poor performance in many areas related to information and democratic competence, my findings are normatively encouraging in at least two respects. First, I find that the public has the capacity for lie detection. Aggregate truth perceptions vary with PolitiFact's truthfulness ratings: the most truthful statements are perceived to be true while the least truthful are perceived to be false. Second, while partisanship matters, it does not necessarily undermine the public's lie detection ability.

[4]However, Bullock et al. (2015) and Prior, Sood and Khanna (2015) suggest that such findings reflect partisan cheerleading.

The experimental part of my analysis demonstrates that knowing the party and identity of the speaker causes greater polarization of partisans' truth perceptions, but this does not diminish the overall relationship between perceptions and the truth except when statements are made by well-known, highly polarizing figures.

Theoretical Expectations

Define the truthfulness of a statement to be the degree to which it is consistent with verifiable facts and evidence. While truth is typically conceived of as a binary concept, it is meaningful to think of truthfulness as a continuum. At the extremes, a statement is true if it accurately reflects all of the relevant facts and false if it flatly contradicts them. In between these ends, truthfulness can vary for different reasons. For example, any given statement might involve a mix of claims, and the truthfulness of the statement would be the overall proportion of claims that are true. The richness of natural language also provides speakers with the means to exaggerate or to equivocate in self-serving ways without directly contradicting the evidence. Statements low on truthfulness are those for which a speaker stretches or exaggerates their claims, takes facts out of context, or makes misleading claims about policy implications. A simple framework for expressing the relationship between the truthfulness of a statement T and perceptions of the truth P is to consider the linear equation $P = \alpha + \beta T$.

There are at least two substantive reasons we might expect a null relationship, such that $\beta = 0$. One is that citizens are simply too uninformed and ignorant about policy to be able to accurately judge the veracity of politicians' statements. That is, they just don't know enough. The other is a somewhat more sophisticated rationale that draws from strategic models of politics and communication. Citizens may recognize their ignorance as well as the fact that politicians have incentives to mislead them. Models of cheap talk imply that when the divergence between citizens' and politicians' preferences is great enough, citizens should exhibit rational skepticism and discount what politicians say (Crawford and

Sobel 1982, Minozzi 2011). If so, then all statements would be viewed as either false ($\alpha < 0$) or ambiguous ($\alpha = 0$), and there would otherwise be no relationship between T and P ($\beta = 0$).

Although citizens as a whole may be generally uninformed, the fact some citizens have accurate, independent information about politics and public affairs may be enough for groups in the aggregate to recognize the truth. Epistemic theories of democracy, for example, emphasize the beneficial properties of aggregation (Landemore 2013). Suppose that different citizens have access to different bits of knowledge, many of which may be extremely noisy, but that these pieces of information are unbiased signals of the truth. On average, then, the noise will cancel out and through the process of statistical aggregation (Galton 1907), we would observe a positive relationship between truthfulness and truth perceptions.

Hypothesis 1. *Truth perceptions will be increasing in independent evaluations of statement truthfulness:* $\beta > 0$.

Less informed citizens, those without sufficient knowledge to judge the veracity of political statements directly, can instead draw inferences based on other kinds of readily accessible information, such as the identity or partisanship of the speaker. In many informational settings, cue-taking can provide a heuristic that serves as a "rational shortcut" to accurate judgments and decision making (Boudreau 2009, Gigerenzer 2007, Lau and Redlawsk 2001, Lupia 1994, Popkin 1991). An obvious cue is partisanship (Downs 1957), and there is extensive research that demonstrates reliance on partisan cues (Arceneaux 2008, Lodge and Hamill 1986, Rahn 1993). Knowing that a statement was made by a politician of the same party (shared partisanship) generally implies preference congruence, which generates increased trust and confidence in a speaker's credibility. Conversely, knowing that the statement came from a politician from the opposite party (cross partisanship) generates the inference that the speaker and, by implication the speaker's statements, are untrustworthy.

The strength of partisan effects may come in moderate and strong forms. If citizens' reliance on partisan cues is moderate, then we would expect to see overall shifts in partisans' truth judgments. This would be the case if informed citizens ignored partisan cues and relied on their own knowledge while uninformed citizens relied on partisan cues. When partisan cues are available, co-partisans are therefore more likely to perceive statements to be true and cross-partisans are more likely to perceive statements to be false. Let α_k denote different intercept shifts for partisan groups k, where $k = S$ denotes a co-partisan, $k = X$ denotes a cross-partisan, and $k = I$ denotes an independent (non-partisan). Moderate partisan cue-taking implies shifts in the intercepts, with a natural corollary of this expectation that greater reliance on partisan cues will generate greater polarization in truth perceptions between respondents of different parties.

Hypothesis 2. *If citizens' reliance on speaker cues is moderate, truth perceptions will vary with the partisan alignment between the statement's speaker and respondent in the form of intercept shifts, with positive shifts for co-partisans and negative shifts for cross-partisans:* $\alpha_X < \alpha_I < \alpha_S$.

In highly competitive partisan and hyper-partisan environments, however, reliance on such cues might amplify opinion polarization to the extent that any wisdom that the crowd may possess is diminished or destroyed. The effect of partisan cues will take a strong form if they displace or crowd-out reliance on personal knowledge, even if such knowledge would have otherwise been reliable. This can happen if partisan cues induce an automatic, affective response that unconsciously overrides deliberative thought. In the language of dual-process theory from cognitive psychology, partisan cues are a Type 1 process (Evans and Stanovich 2013), and previous research suggests that such cues can indeed crowd out rational thought (Kahan et al. 2017). If this is also the case with truth perceptions, then we should expect to see not only overall shifts and differences in perceptions by partisanship, but also a weaker relationship between truth perceptions and the veracity of the underlying statements.

Strong reliance on partisan cues implies there should be differences not only in the intercepts of the relationship but also in the slopes as a function of the availability of partisan cues (i.e., an interaction). Let β_k denote different partisan slopes, with k defined as before. The availability of partisan cues implies a slope that is closer to zero than when cues are unavailable, and if cues completely override knowledge, then the slopes should be indistinguishable from zero. If, however, partisanship does not entirely eliminate the wisdom of the crowd, we should still expect to see a positive slope (consistent with Hypothesis 1.

Hypothesis 3. *If citizens' reliance on speaker cues is extreme and cues crowd-out knowledge, truth perceptions will vary with the partisan alignment between the statement's speaker and respondent in the form of both intercept shifts and slope differences such that the slope for partisans will be closer to zero and there will be polarization between the intercepts between co-partisans and cross-partisans:* $\alpha_X < \alpha_I < \alpha_S$ *and* $\beta_S = \beta_X = 0$.

Another use of source cues, one that requires greater than minimal knowledge beyond mere partisanship, is to assess the veracity of a statement based on the credibility of the speaker. For example, Nicholson (2011) finds that leader-specific cues have more influence than party labels. This requires citizens to be knowledgeable about, or to at least to have been exposed to, information pertaining to the character traits of different politicians. Such information could be plausibly encoded in an overall evaluation, impression, or feeling, as posited by theories of online processing (Brady and Sniderman 1985, Lodge, McGraw and Stroh 1989). As with partisan cues, relying on speaker-specific traits or evaluations far from guarantees accurate veracity judgments, especially to the extent that impressions of candidate traits are shaped by the media, second-hand information, and selective attention. Nevertheless, reliance on speaker traits to make inferences about statements implies an additional cue-taking hypothesis.

Hypothesis 4. *When the speaker's identity is known, truth perceptions will vary with subjective evaluations of the speaker.*

Data and Research Design

To investigate citizens' veracity judgments, I designed a novel statement rating task that asked survey respondents to rate the truthfulness of real statements made by politicians. The statements used in the task vary in their truthfulness, cover a range of issues, and were made by a variety of politicians from both parties. To test the effects of source cues, the study design experimentally manipulates the availability of information about the speakers. I collected data in three waves from respondents recruited from Amazon's Mechanical Turk to take a survey on the Qualtrics platform. Wave 1 ($N = 184$) was conducted between June 21-28, 2016, Wave 2 ($N = 221$) between March 21-April 2, 2017, and Wave 3 ($N = 791$) between October 19-24, 2017.[5]

In each wave, every respondent rated a set of 20 statements. Respondents in Waves 1 and 2 rated the same set of 20 statements as either "True" or "False", allowing for uncertainty with an option of "I'm not sure." Respondents in Wave 3 rated a random subset of 20 statements from a pool of 50 possible statements (different from those used in Waves 1 and 2) on a seven-point scale, ranging from "Very Likely True" to "Very Likely False," with "I'm not sure" as the middle option. The order of the statements was randomized for each respondent. In total, 70 distinct statements were rated across the three waves of the study.

The statements used in the task were made by 28 different current or former elected officeholders or candidates for public office and pertain to a wide variety of policy-relevant claims covering both domestic and foreign policy, including jobs, taxes, inequality, poverty, health care, energy, education, immigration, civil rights, terrorism, and war. None of the statements pertain to candidate biographies, ad hominem attacks, or claims that might otherwise provide clues about who the speaker is (such as references to parties or other candidates).[6] The overall pool of 70 statements is balanced with respect to the partisanship

[5]See the Appendix for additional information about sample demographics for each wave.

[6]The statements used for Wave 3 were rated independently by three undergraduate research assistants as being high in policy content and low in credit-claiming or blame. The assistants also rated each statement (reading them without attribution) on a 0-5 scale in terms of how much it sounded like it might have come from Donald Trump. Their codings are remarkably accurate, as 95% of statements that had an average score

of their sources (half from Democrats and half from Republicans) and is nearly balanced in terms of the truthfulness of the statements. With such a large number of statements covering many speakers and issues, there is substantial heterogeneity in statement content, which minimizes the possibility that the results will depend on the specific set of statements used, thereby also increasing external validity.

All of the statements were obtained from PolitiFact, an independent, non-partisan fact-checking website. PolitiFact rates each statement on their "Truth-O-Meter" rating scale, which has six categories: True, Mostly True, Half True, Mostly False, False, and Pants on Fire. The most accurate claims are rated "True" while wildly inaccurate and ridiculous claims are rated "Pants on Fire." Importantly, PolitiFact evaluates each statement's veracity after in-depth staff research, deliberation by an editorial team, and publicly discloses their rationale by publishing it to their website. PolitiFact's ratings therefore serve as an independent measure of the truth that minimizes researcher subjectivity.

The primary experimental manipulation of interest varies the availability of information provided about the statement's speaker. In the *Anonymous* condition, which can be thought of as the control, respondents are given only the content of the statement. In the *Speaker* condition, which can be thought of as the informational treatment, each statement was preceded by the speaker's partisan affiliation, current or former office (or office sought), and name. In Wave 1, respondents were block randomized (by party) into either the Anonymous or Speaker conditions.

The following four statements are examples of what respondents rated in the Anonymous condition:

1. "The top hedge fund managers are making more than all of America's kindergarten teachers combined."
2. "Nobody suffered any lasting injuries from the CIA interrogation program."
3. "The annual cost of free tax credits alone paid to illegal immigrants quadrupled to $4.2 billion in 2011."

close to 5 were actually made by Trump and only 5% of statements with an average rating close to 0 were made by Trump. Wave 3 only includes statements with an average Trump-speak score below 1.

4. "We have the highest rate of childhood poverty of any major country on Earth."

PolitiFact rated the first statement (made by Hillary Clinton) as "True," the second (by Republican Congressman Peter King) as "Pants on Fire," the third (by Republican presidential nominee Donald Trump) as "Half True," and the fourth (by Democratic presidential candidate Bernie Sanders) as "Mostly False." (See the Appendix for the full list of statements, speakers, ratings, and URLs for the PolitiFact sources.)

The use of real statements greatly enhances external and ecological validity, but avoiding deception also poses several complications. Given that PolitiFact tends to select statements that are newsworthy and likely to have received non-negligible media attention, it is possible that well-informed respondents had prior knowledge of the statements and therefore already knew who said them. If that is the case, then the Anonymous condition would not sufficiently resemble an idealized situation in which there is an absence of information, as respondents' truth perceptions in the Anonymous condition would already be colored by their beliefs and attitudes about the statements' speakers. Such prior knowledge of statements and their speakers would reduce the informational contrast between the Anonymous and Speaker conditions, thus biasing the design against finding source cue effects.

A second limitation of using real statements is that the exact nature of the content cannot be held constant. Indeed, it would be deceptive—and highly unrealistic—to attribute a statement by Hillary Clinton to Donald Trump and vice versa. As noted above, I address this in part by using a large number of statements from a variety of speakers on a variety of topics.[7] Nevertheless, unobservable differences in statement content may still confound the observed relationship between perceptions and the truth. Even if respondents can't correctly identify the speakers, it may be possible that sufficiently informed respondents can

[7]Another potential approach is to identify pairs of matched statements with similar or nearly identical content. This approach is not feasible in practice. In selecting statements for Wave 3, I started with a set of 1,110 statements made between June 2016 and August 2017, and winnowed them to 108 usable statements that satisfied the selection criteria (policy content, no names, no ad hominem, not Trump-like, etc). From this usable set, my research assistants searched for pairs statements with the same truth rating but from opposite parties on the same issue. We identified 4 such pairs of statements in this way, all of which were either Mostly True or Half True, which does not provide enough variation on the underlying measure of truthfulness.

recognize the partisan content of each statement. In the examples above, Hillary Clinton's statement about inequality and Bernie Sanders's statement about poverty are likely to be perceived as Democratic since they emphasize concerns of Democratic politicians, while statements concerning high taxes are likely to be perceived as indicating Republican sources. Computational text analysis of congressional speech indeed finds distinct partisan patterns of issue emphasis (Gentzkow, Shapiro and Taddy 2016, Jensen et al. 2012, Monroe, Colaresi and Quinn 2008).

To address these concerns, I added an additional treatment to Waves 2 and 3 in which respondents first guessed the partisanship as well as the identity of the statement's speaker before rating its truthfulness. Data from this *Guess* condition can therefore be used to assess the extent of respondents' prior knowledge of the statements as well as the degree to which prior knowledge or partisan perceptions of speech may affect or mediate the relationship between truth and perceptions. Respondents in Waves 2 and 3 were block randomized (by party) into either the Anonymous, Speaker, or Guess conditions.

For each statement, all respondents (regardless of condition) were asked to identify the statement's issue prior to rating its truthfulness. For each issue identification question, one of the response options was an obviously right answer and the other was an obviously wrong answer. For example, the issues for the first sample statement above (Hillary Clinton's statement about hedge fund managers) were "inequality" and "health care." These issue questions serve two purposes. First, given that the correct issue is obvious, these questions provide a way to check if respondents are paying attention and to encourage them to the survey seriously. Second, asking respondents to identify the issue before asking them to rate the truthfulness of a statement serves to encourage neutral information processing and discourage motivated information processing (because respondents are forced to think about the issue before deciding whether it is true). Overall, 88% of respondents correctly identify all 20 issues, while 97% correctly identified at least half of the issues.

I also took additional measures to ensure the quality of Mechanical Turk responses as well as partisan balance in the sample of respondents. Respondents were first recruited to take a short profile survey that recorded a set of basic demographic and political characteristics, including sex, race, education, age, partisanship, and ideology. Respondents were paid $0.25 for completing the screening survey in Wave 1, which also included additional questions to measure political knowledge, attitudes toward politicians, and perceptions of fact-checking websites. Respondents were paid $0.10 for the screening survey in Waves 2 and 3, which was considerably shorter and only included basic demographics, partisanship, ideology, and questions about President Trump's job approval. The short survey also included a "screener" question to ensure respondents were paying attention (Berinsky, Margolis and Sances 2014). Only subjects who passed the screener question were invited to complete a second survey that contained the statement-rating task.

To achieve a balanced distribution of partisans, respondents from each party (Democrats, Republicans, independents) were recruited in equal numbers for each wave based on their response. Partisans were roughly balanced in Waves 1 and 2, with 57 Democrats, 62 Republicans, and 57 independents in Wave 1 and 74 Democrats, 76 independents, and 71 Republicans in Wave 2. Despite these efforts, Wave 3 has far fewer Republicans ($N = 189$) than Democrats ($N = 301$) or independents ($N = 301$). Respondents were paid $0.50 for the statement rating task in Wave 1 and $1.00 in Waves 2 and 3.

Findings

Truth perceptions

Beginning with aggregate analysis of truth perceptions, I find that respondents' veracity judgments generally track the truth. Pooling across questions, experimental conditions, respondents, and waves, a clear majority, 58.5%, of the 12,920 perceptions of true statements (those PolitiFact rates as True, Mostly True, or Half True) rate them as true, compared to

23.7% of perceptions rating them false. Perceptions of false statements (Mostly False, False, and Pants on Fire) are not as accurate, with the 11,000 responses evenly split between 40.8% false ratings and 39.6% true ratings. Nevertheless, compared to the true statements, a greater proportion of responses rate false statements as false and a smaller proportion rate them as true. This aggregate analysis suggests there is a sizable amount error and uncertainty, with an asymmetry in perceptions of true versus false statements. This asymmetry appears in the form of a "truth bias" where perceptions of true statements are more accurate than perceptions of false statements.

Figure 1 provides a more detailed picture, which plots the average level of perceived truth, P, by PolitiFact rating and study wave. The data for the figure are restricted to the Anonymous condition (statements without attribution), and the variable is coded 1 if a respondent perceives the statement to be true, -1 if false, and 0 if uncertain.[8] The average of P is equivalent to the net percentage of true perceptions (percentage true minus percentage false).

There is a striking pattern in Figure 1, providing preliminary support for Hypothesis 1: Perceptions of the truth increase with the underlying truthfulness of statements. Perceptions at the extremes tend to be the most accurate. In both Waves 1 and 2, the mean value of P for statements PolitiFact rates as True is greater than 0.60 (0.62 and 0.68). For Pants on Fire statements, the means are -0.32 and -0.44, respectively. In Wave 3, the differences are more muted, with a mean of 0.33 for True statements and -0.16 for Pants on Fire. Nevertheless, the mean values at the endpoints are all statistically distinguishable from 0 in the expected directions.

Also consistent with Hypothesis 1, ambiguous statements with truth ratings in the middle of the scale tend to be perceived with greater difficulty. There is additional evidence for an asymmetry between statements on the true and false sides of the spectrum as well. In Wave 1, average perceptions for False statements cannot be distinguished from zero, while

[8]For the purposes of comparability in Figure 1, I collapse the 7 point scale in Wave 3 to this 3 point scale.

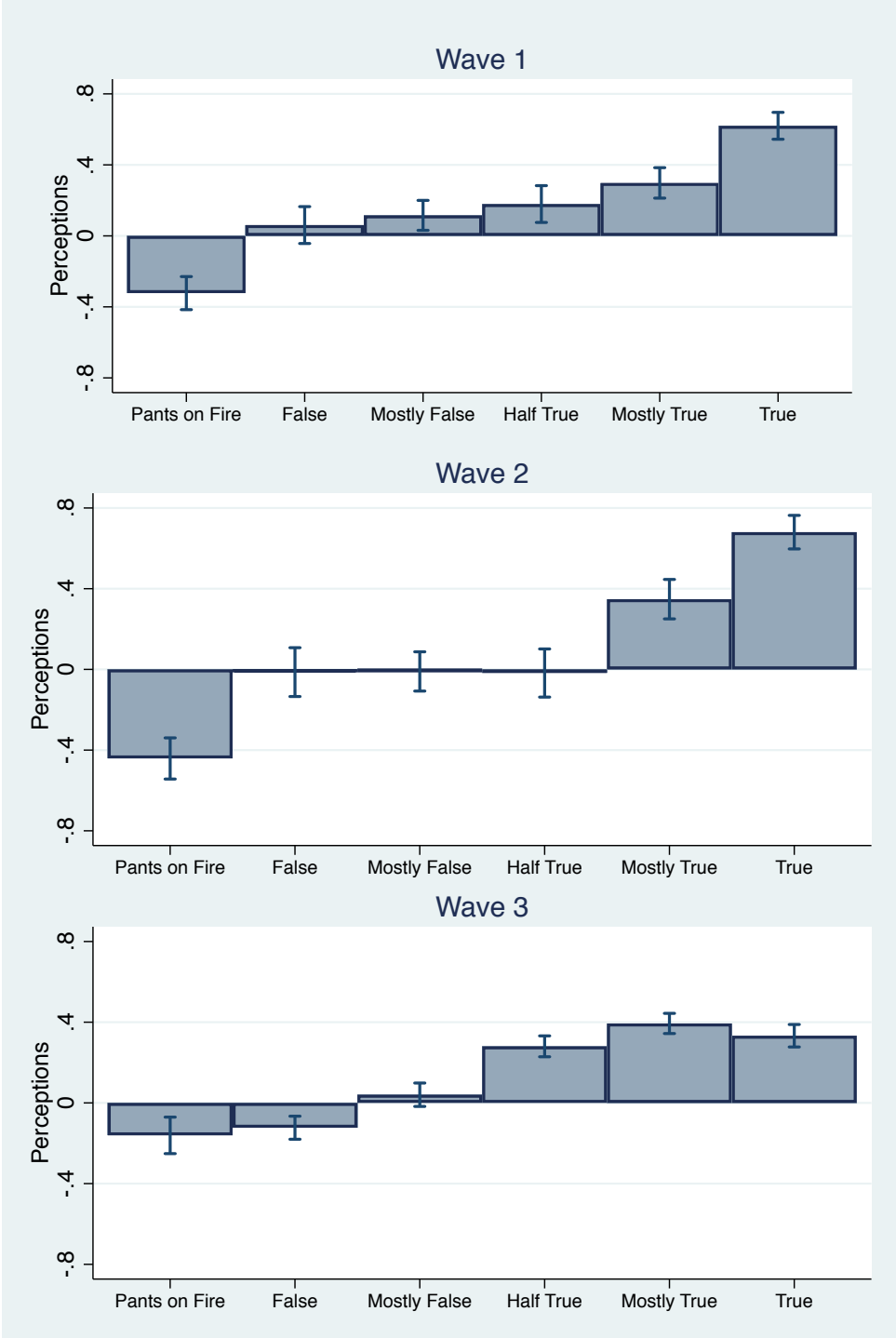

Figure 1: Mean truth perceptions in the Anonymous condition

the same is true for False, Mostly False, and Half True statements in Wave 2. Interestingly, there is stronger evidence for lie detection in Wave 3, with only the mean for Mostly False statements indistinguishable from zero while the mean for False statements is negative and statistically significant.

Simple regression analysis also provides preliminary statistical evidence in favor of Hypothesis 1. Estimating the ordinary least squares regression of P on the PolitiFact rating R, where R ranges in value from -1 for Pants on Fire to 1 for True, the slope coefficient is 0.36 when the waves are pooled and are 0.38 for Wave 1, 0.47 for Wave 2, and 0.31 for Wave 3 when the data are disaggregated (all statistically significant at conventional levels). Substantively, these coefficients represent the change in the net percentage of true perceptions as the truthfulness rating increases from complete ambiguity to complete truthfulness (or equivalently from completely false to ambiguous).

Source Cues and Partisan Congruence

Having established that there is a consistent relationship between perceptions and the underlying truthfulness of unattributed statements, what is the effect of providing explicit source cues? Does the reliance on cues merely increase polarization of perceptions (Hypothesis 2), if at all, or does it diminish—even eliminating—the relationship with the truth altogether (Hypothesis 3)? To answer these questions, I estimate a multilevel mixed effects model with a set of partisan congruence variables interacted with a treatment variable and the ratings variable. The analysis in this section is restricted to the Anonymous and Speaker conditions, with the analysis of data from the Guess condition used in the next section. The basic idea behind the model specification is to be able to estimate how the relationship between perceptions and truth (both the slope and intercept) changes with partisan congruence and speaker attribution.

The dependent variable P_{ij} is respondent i's perception of the truthfulness of statement j. For Waves 1 and 2, P_{ij} takes integer values from -1 to 1, and for Wave 3 takes

values from -3 to 3. R_j corresponds to PolitiFact's Truth-O-Meter rating and takes on values from -1 (Pants on Fire) to 1 (True), in increments of 0.4 (since it is a 6-point scale). Let S_{ij} indicate whether respondent i shares the partisanship of the speaker for statement j (a co-partisan), and let X_{ij} indicate whether the respondent and speakers are from different parties (a cross-partisan). Party identification was measured using a standard branching format and these variables are coded using the responses to the initial question, with independents (including leaners) coded $S_{ij} = X_{ij} = 0$.[9] Let T_i indicate whether the respondent is assigned to the Speaker treatment.

The model specification can be written as follows:[10]

$$\begin{aligned} P_{ij} &= \alpha + \delta_S S_{ij} + \delta_X X_{ij} \\ &\quad + \beta(1 + \tau_S S_{ij} + \tau_X X_{ij}) R_{ij} \\ &\quad + (\gamma + \gamma_S S_{ij} + \gamma_X X_{ij}) T_i \\ &\quad + (\lambda + \lambda_S S_{ij} + \lambda_X X_{ij}) T_i R_{ij} + \eta_j + \mu_i + \varepsilon_{ij} \end{aligned}$$

While this has many terms and appears complicated, the coefficients have simple interpretations in terms of the intercept and slope in the relationship between P and R, where α is the intercept and β is the slope for the baseline case of independents in the control condition. The δ_k parameters represent partisan differences in the intercepts from independents, while τ_k represent differences in the slope from the baseline. The effects of the attribution treatment on the intercept are represented by γ_k, where γ is the effect for independents and γ_S and γ_X are the differences in the effect for partisans. The analogous effects of the treatment on the slope are represented by the λ_k coefficients. The model includes non-nested question-level random effects η_j and respondent-level random effects μ_i, while ε_{ij} is the observation-level error term.

[9] Coding leaners as partisans does not alter the conclusions of the analysis, but it does reduce the number of observations for independents and reduces statistical power for the estimates of the main effects.

[10] This specification was included in the pre-analysis plan registered with EGAP.

The main results of the analysis are presented graphically in terms of predicted values from the model. (Interested readers can find the coefficient estimates in the Appendix.) Figure 2 organizes the predictions by wave and partisan congruence in order to better discern treatment effects within subgroups. Figure 3 organizes the results to facilitate comparisons between levels of partisan congruence within treatment conditions. There are three patterns apparent from these figures. First, all of the predicted regression lines have positive slope. Second, the provision of explicit speaker cues does not diminish the slope much at all. Third, speaker attribution increases the gap between partisan perceptions.

Overall, the statistical analysis provides robust support for Hypothesis 1. Across all waves, the estimate for the main slope coefficient, $\hat{\beta}$, is positive and statistically significant. The estimates of the partisan effects on the slope in both the baseline, $\hat{\gamma}_k$, and treatment, $\hat{\lambda}_k$, are generally small in magnitude and not statistically significant. The exceptions where there is a significant decrease in the slope are in Wave 3, for co-partisans as well as for independents in the treatment, but even in these cases, the overall slopes (linear combinations of the slope-related parameters) remain positive and statistically significant. Substantively, the magnitudes of the slope estimates are on par with the simple OLS estimates in the previous section, as moving from the middle of the truthfulness scale to one end of the scale produces a net swing of approximately $0.44-0.49$ percentage points in Waves 1 and 2 (on the 3-point scale) and 0.74 in Wave 3 (on the 7-point scale). Thus, there is a strong relationship between truthfulness and perceptions even accounting for partisan congruence and explicit attributions.

The results also suggest that partisans make use of speaker cues consistent with moderate effects posited in Hypothesis 2 but not the strong effects as posited in Hypothesis 3. The left-most column of plots in Figure 2, for example, show that statements are perceived to be more truthful when respondents know the speaker shares their partisanship, while the plots in the right column show that perceptions move in the other direction when the speaker and respondent are from different parties. The effect of the treatment on partisan

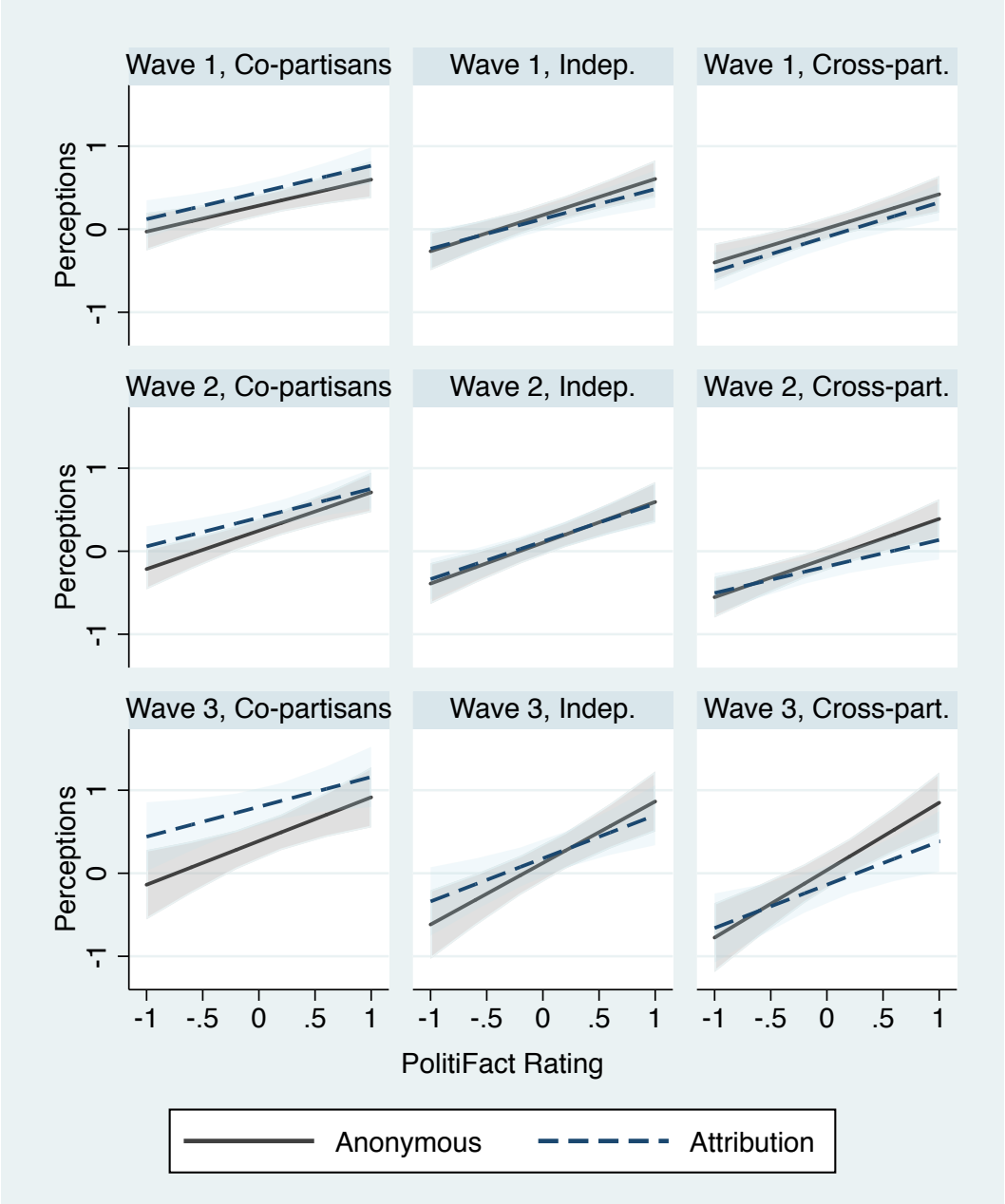

Figure 2: Model predictions by wave and partisanship

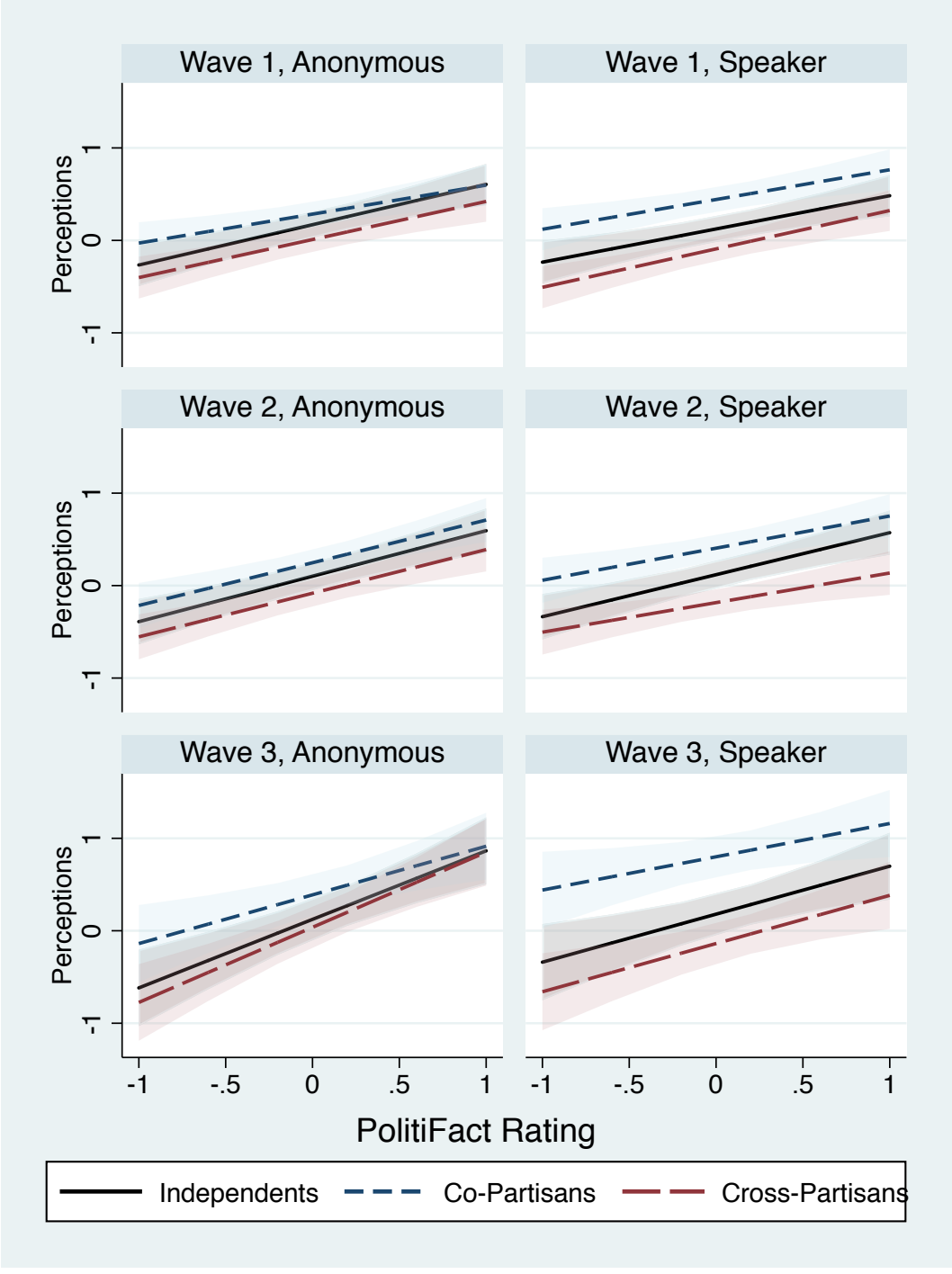

Figure 3: Model predictions by wave and treatment

perceptions manifests more clearly in Figure 3 as an increase in the polarization between co-partisans and cross-partisans from the Anonymous condition to the Speaker condition. More precisely, taking $\hat{\gamma}_S - \hat{\gamma}_X$ as a measure of the treatment effect on the partisan gap, the increase in polarization is 0.26 in Waves 1 and 2 and 0.59 in Wave 3 (all significant at $p < 0.01$).

There is one other notable aspect to these results. It is that there is a non-trivial partisan gap in the baseline condition. The estimates of this gap, $\hat{\delta}_S - \hat{\delta}_X$, are 0.27 in Wave 1, 0.33 in Wave 2, and 0.59 in Wave 3, and we can reject the null hypothesis of a zero gap for each of these linear combinations of coefficients. If respondents have the same information and judge statements in the same neutral (non-partisan) manner, then these gaps should not exist. Yet, they do—which means that partisanship somehow affects truth perceptions even when only the content is given. In the next section, I investigate what might account for this. Nevertheless, it is quite remarkable that the truth matters and remains a powerful force even in the face of explicit partisan information.

Speaker Recognizability and Partisan Content

There are several possible explanations for the partisan gap in the Anonymous condition. As noted in the discussion of the design, it may be the case that respondents are highly knowledgeable, recognize the speakers' identities, and then rely on their attitudes toward the speakers to make inferences about the veracity of statements. Given generally low levels of political knowledge, this seems unlikely. More likely, then, is the possibility that politically knowledgeable respondents can recognize the partisan tenor or implications of statements, given the distinct ways in which Democratic and Republican politicians tend to emphasize and speak about different issues. Yet another possible explanation is that Democrats and Republicans simply believe different things—not only do they hold different worldviews, but they believe different facts. While this last explanation is not possible to disentangle completely from a preference-based explanation or cheerleading behavior without

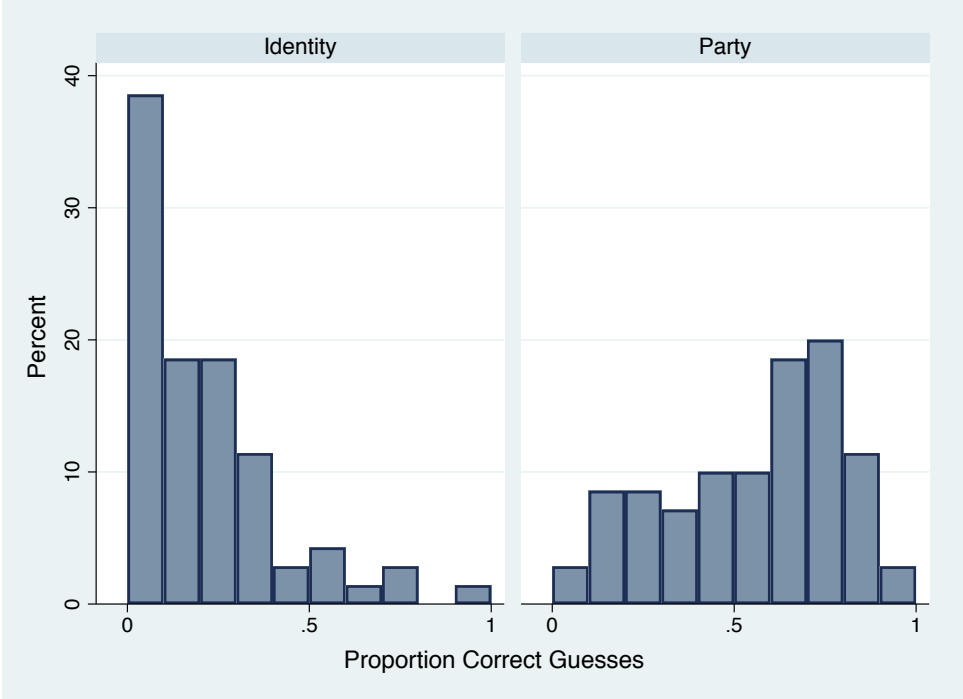

Figure 4: Accuracy of guesses

independent measures of knowledge, any evidence supporting content or perception-based differences would provide suggestive evidence against it.

Figure 4 presents the accuracy of respondents' beliefs about the identity and partisanship of speakers at the statement level in the Guess condition of Waves 2 and 3. Comparing the left and right histograms shows that respondents are much more able to guess the partisanship of the speaker than the speaker's name. Indeed, an average of 21% of respondents correctly guessed the partisanship of the speaker compared to an average of 56% that correctly guessed the speaker's party. Notably, there are only 6 out of 70 statements for which a majority of respondents correctly identify the speaker.[11] Thus, it seems plausible that the recognizability of the partisan content of political statements may confound the relationship

[11]One of the statements was made by Bernie Sanders (Wave 3) and the other five were made by Donald Trump (3 in Waves 1/2 and 2 in Wave 3). On some level, this is not surprising given the linguistic distinctiveness of Trump's speech. Even so, for Trump's five other statements in rating task, fewer than half of respondents were able to correctly recognize him as the speaker.

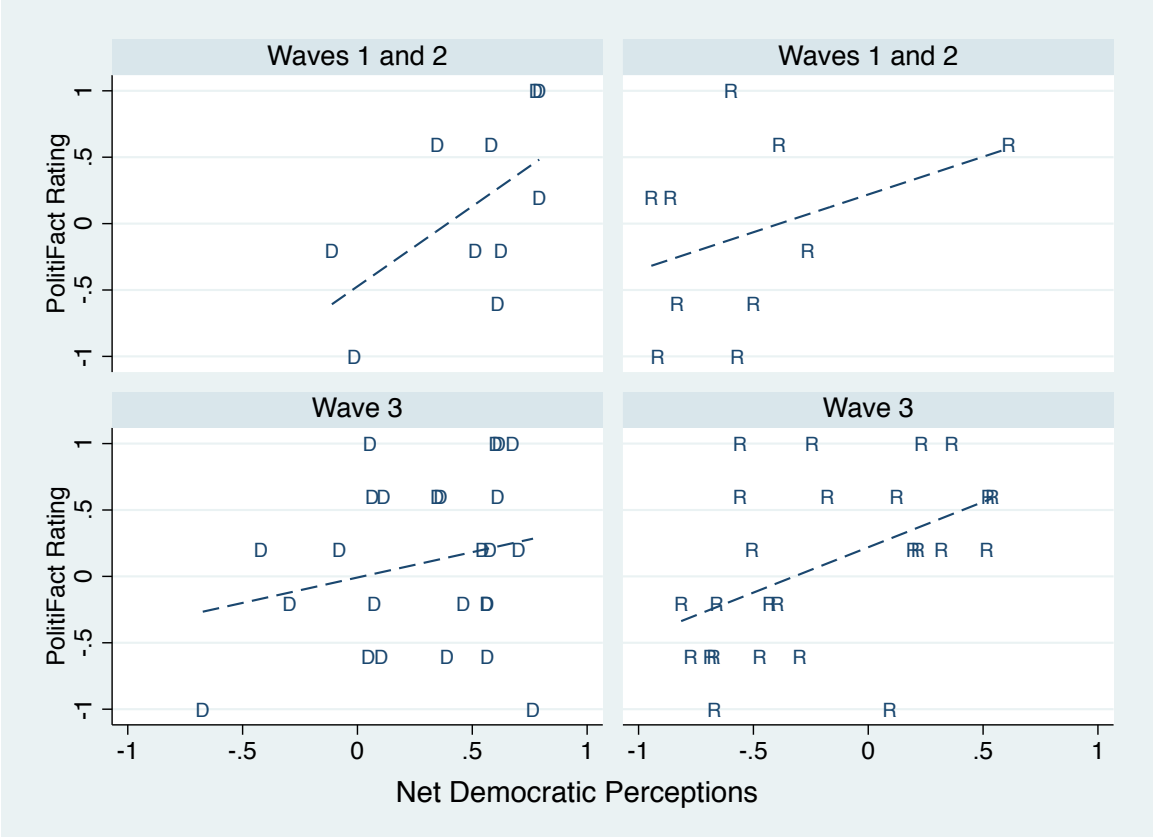

Figure 5: Truthfulness and partisan content

between truthfulness and perceptions, while the recognizability of speakers' identities is far less of a concern.

Figure 5, which plots PolitiFact ratings against question-level perceptions (net percentage of respondents who guessed the statement's speaker was a Democrat rather than a Republican), further suggests the possibility that unobserved partisan content may be an omitted variable in the foregoing analysis. The fitted (OLS) regression lines suggest that the perception that a statement is Democratic is a good predictor of a statement's truthfulness. Most of the statements used in Waves 1 and 2 are recognizably partisan, as are most of the Democratic statements in Wave 3. Interestingly, most of the counter-stereotypical statements (in Wave 3) were made by Republicans but were perceived to be have been uttered by Democrats.

Could the perceptions of statements' partisan content account for the strong positive relationship between truthfulness and veracity judgments or for the partisan gap in the absence of explicit information? I test these possibilities in a couple of ways.[12] First, I add a statement-level measure of partisan content as a control variable in the regression analysis. The measure I use is the net percentage of Democratic guesses from the respondents in the Guess condition. As before, the regression analysis uses observations from the Anonymous and Speaker conditions. If the partisanship of a statement's content influences truth perceptions because citizens believe Democratic statements are generally more truthful, then we should observe a positive relationship between Democratic perceptions and truth perceptions regardless of a respondent's partisan identification. If, however, respondents recognize a statement's partisan slant and then judge a statement's truth based on its congruence with their own partisan preferences, then we should observe a positive relationship for Democrats and a negative relationship for Republicans.

Table 1 presents the estimates for a subset of the relevant coefficients.[13] For comparison, models (1) and (4) show the coefficient estimates from the original analysis discussed in the previous section. When the Democratic perception variable is added as a control to the models (2) and (5), its coefficient is positive and significant at conventional levels, which suggests that respondents perceive Democratic-sounding statements to be more truthful. The coefficient for the truth rating is also smaller in magnitude when Democratic perceptions are included, which suggests that the coefficients in the original specification are indeed biased upward, although the size of the bias is relatively small. This is also the case when the relationship between partisan content and truth perceptions is allowed to vary by partisanship of the respondent, as in models (3) and (6). The coefficient estimates for truth ratings in these columns are nearly the same as in the models without interactions between partisan

[12]The remainder of the analysis was not specified in the pre-analysis plan and can be considered exploratory.

[13]For ease of presentation, the interaction terms capturing differences in slope are omitted, which remain virtually the same across model specifications.

Table 1: Analysis controlling for statement-level perceptions of partisan content

	Wave 2			Wave 3		
	(1)	(2)	(3)	(4)	(5)	(6)
Truth Rating	0.49**	0.41**	0.39**	0.74**	0.55**	0.56**
	(0.10)	(0.10)	(0.10)	(0.16)	(0.15)	(0.15)
Co-Partisan	0.15*	0.15*	-0.05	0.26**	0.26**	0.13
	(0.06)	(0.06)	(0.07)	(0.08)	(0.08)	(0.08)
Cross-Partisan	-0.18**	-0.18**	0.01	-0.09	-0.08	0.04
	(0.06)	(0.06)	(0.07)	(0.07)	(0.07)	(0.08)
Speaker Treatment	0.02	0.02	0.02	0.06	0.06	0.06
	(0.07)	(0.07)	(0.07)	(0.08)	(0.08)	(0.08)
Speaker Treatment	0.14	0.14	0.14	0.36**	0.36**	0.36**
× Co-Partisan	(0.09)	(0.09)	(0.09)	(0.11)	(0.11)	(0.11)
Cross-Partisan	-0.12	-0.12	-0.12	-0.23*	-0.23*	-0.25*
× Cross-Partisan	(0.09)	(0.09)	(0.09)	(0.11)	(0.11)	(0.11)
Net Democratic		0.21*	0.28**		0.75**	0.72**
Perception		(0.09)	(0.09)		(0.19)	(0.19)
Democrat			0.28**			0.47**
× Net Dem.			(0.07)			(0.08)
Republican			-0.50**			-0.51**
× Net Dem.			(0.07)			(0.09)
Constant	0.10	0.11	0.11	0.12	0.10	0.10
	(0.07)	(0.07)	(0.07)	(0.11)	(0.10)	(0.10)
Observations	2,980	2,980	2,980	10,740	10,740	10,740
Log likelihood	-3,474.2	-3,471.6	-3,432.4	-20,417.1	-20,410.0	-20,359.2
χ^2	228.2	241.2	326.6	368.9	390.3	496.2

* $p < .05$ ** $p < .01$; multilevel mixed effects regression with statement and respondent random effects, interactions with Truth Rating omitted for clarity of presentation

content and partisanship. Even controlling for partisan content, the relationship between truthfulness and veracity judgments remains strong.

There is also some evidence, albeit mixed, from this analysis that respondents rely on their recognition of content in partisan-congruent ways. For Wave 2, model (3), the interaction between Republican and Democratic content is negative and greater in magnitude than the baseline coefficient. Indeed, the linear combination of the two coefficients is negative and statistically significant, implying that Democrats view Democratic-sounding statements more favorably, while Republicans perceive Republican-sounding statements more favorably. In Wave 3, however, while the Republican interaction is negative and significant, we cannot reject the null hypothesis that the linear combination of the coefficients is zero. Thus, the analysis suggests that Democrats and independents are responsive to partisan content in Wave 3, while Republicans do not seem to perceive truth as a function of partisan-congruent content. It is also interesting to note that the baseline coefficients for the partisan variables ($\hat{\delta}_S$ and $\hat{\delta}_X$) are smaller in magnitude and no longer significant when net Democratic perceptions and party interactions are included in the model. This suggests that the recognizability of partisan content may account for baseline levels of polarization.

Speaker-Specific Attitudes and Polarizing Politicians

To what extent do attitudes towards specific political figures influence perceptions of truthfulness? In this section, I address this question in two ways: by including respondents' attitudes towards the speakers in the model specification and by splitting the sample into statements made by highly polarizing and less polarizing figures.

The first analysis uses measures of attitudes toward specific politicians, which were collected in slightly different ways across the waves of the study. In Wave 1, respondents rated 9 of the 12 speakers on a feeling thermometer that ranged from 0 (coldest) to 100 (warmest). These questions were included on the screening survey that respondents took prior to the rating task. In Wave 3, after completing the statement rating task, respondents

then rated whether they "liked" or "disliked" (on a 7-point Likert scale) each of the 24 politicians whose statements were included in the pool of 50 statements (even if they did not rate any statements by that politician).

Table 2 presents the results of the statistical analysis that includes speaker evaluations as a covariate in the models, where the variable *Feelings* is rescaled to range from 0 to 1. For this analysis, I estimate a separate model for the Anonymous and Speaker treatments for each of Waves 1 and 3. Attitudes towards specific politicians strongly influence truth perceptions, providing support for Hypothesis 4, not only in the Speaker condition, but also interestingly in the Anonymous condition. The latter may be due to the fact that the attitudinal measure is more fine-grained than the party congruence measures, and therefore captures variation in intensity of partisan identification. Comparing the main slope coefficients in the Anonymous and Speaker conditions suggests that while the responsiveness of perceptions to the truth diminishes in the Speaker condition, it remains robust to the inclusion of speaker-specific attitudes.

The statements on the rating task include those made by both well-known and lesser-known politicians, and I next explore this potential source of heterogeneity. Nearly half of all statements were made by four highly polarizing speakers: Barack Obama, Hillary Clinton, Bernie Sanders, and Donald Trump.[14] Indeed, on the 7-point scale in Wave 3, the partisan differences in evaluations of these speakers are 1.2 for Obama, 1.2, for Trump, 1.1 for Clinton, and 0.91 for Sanders. There is a drop-off in the partisan gap between these four politicians and the next three (0.78 for Joe Biden, 0.70 for Ben Carson, and 0.64 for Ted Cruz), and the overall average not including the four most polarizing is 0.31.

To analyze how the results vary by the polarization of attitudes towards the speakers, I divide the sample into evaluations of statements made by highly polarizing figures (Obama, Clinton, Sanders, Trump) and less polarizing figures (everyone else). I then estimate the model with the full set of interactions for each sub-sample and compute the slope for each

[14] 12 out 20 in Waves 1 and 2, 24 out of 50 in Wave 3.

Table 2: Analysis of speaker evaluations and truth perceptions

	Wave 1		Wave 3	
	Anonymous	Speaker	Anonymous	Speaker
	(1)	(2)	(3)	(4)
Feelings	0.15**	0.26**	0.08**	0.24**
	(0.03)	(0.04)	(0.01)	(0.01)
Truth rating	0.43**	0.39**	0.79**	0.54**
	(0.12)	(0.09)	(0.18)	(0.14)
Truth rating	-0.06	0.01	-0.25**	-0.25**
× Co-partisan	(0.07)	(0.07)	(0.09)	(0.08)
Truth Rating	-0.01	-0.00	0.06	0.09
× Cross-partisan	(0.07)	(0.07)	(0.09)	(0.08)
Co-partisan	-0.01	0.19**	0.18*	0.30**
	(0.06)	(0.06)	(0.07)	(0.08)
Cross-partisan	-0.11	-0.07	-0.05	-0.10
	(0.06)	(0.06)	(0.07)	(0.08)
Constant	0.23**	0.20**	0.17	0.30**
	(0.09)	(0.07)	(0.12)	(0.10)
Observations	1512	1467	5268	5269
Log likelihood	-1735.6	-1659.2	-9983.3	-9898.3
χ^2	53.69	174.9	95.57	552.7

* $p < .05$ ** $p < .01$; multilevel mixed effects regression with statement and respondent random effects

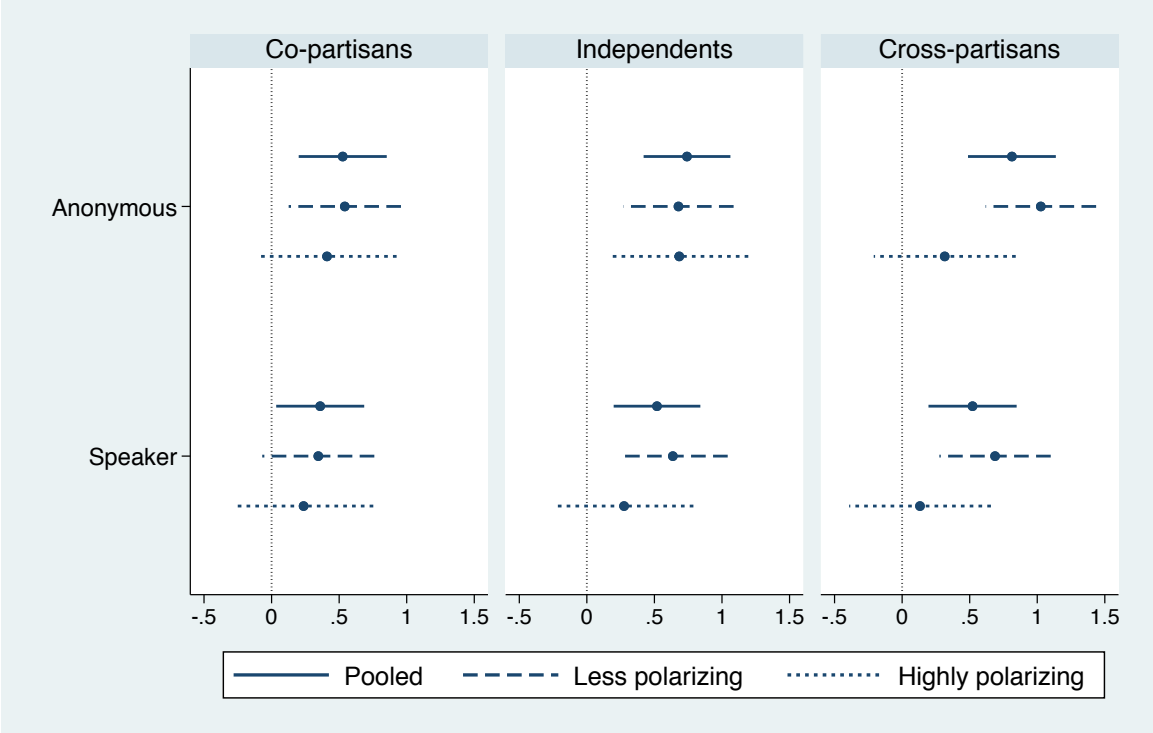

Figure 6: Responsiveness of perceptions to truthfulness by speaker polarization

partisan group within each treatment (i.e., the appropriate linear combination of parameters) as a measure of *responsiveness*.[15]

Figure 6 summarizes the results of this analysis, comparing the estimates of responsiveness in each sub-sample (dotted lines represent 95% confidence intervals for highly polarizing figures and dashed lines for less polarizing figures) to the estimate of responsiveness from the full sample (solid lines). Veracity judgments appear to be less responsiveness to the truth when statements are made by highly polarizing figures than by lesser-known politicians, although these differences appear to be asymmetric across partisan groups. The largest differences in responsiveness are for cross-partisans in both the Anonymous and Speaker conditions, with a more modest difference for independents in the Speaker condition.[16] The

[15]For example, the responsiveness for co-partisans in the Anonymous condition is $\hat{\beta} + \hat{\tau}_S$ while the responsiveness for cross-partisans in the Speaker condition is $\hat{\beta} + \hat{\tau}_X + \hat{\gamma} + \hat{\gamma}_X$, etc.

[16]That there is a large difference for cross-partisans in the Anonymous condition is surprising and may be because the content of these statements is highly polarizing. However, this does not appear to be the case. Examining the speaker and party guess data, respondents are no more likely to guess the identity and partisanship of statements by polarizing figures than less polarizing figures.

differences in magnitude are much smaller for co-partisans, with responsiveness in the subsamples less precisely estimated (as indicated by the wider confidence intervals). These results taken together with the preceding analysis suggest that there are some conditions under which the truth is crowded out by political attitudes—not by negative partisanship alone but by highly polarizing political figures.

Conclusion

Using an original statement rating task, I find that the public is capable of political lie detection. Statements that are "ridiculously" false are generally recognized to be false while statements that are clearly true are generally perceived to be true. Importantly, the capacity for political lie detection is a function of the aggregation of many individual perceptions, reflecting the wisdom of the crowd, much as the average opinion of a crowd at a country fair accurately reflects the weight of a cow (Galton 1907, Landemore 2013, Surowiecki 2004). While partisanship typically exerts a powerful force on political attitudes and beliefs, I find that reliance on partisan cues does not diminish the capacity for lie detection despite increasing the polarization of opinion.

The study of political lie detection raises a number of questions for future research. One is whether there may be ways to improve accuracy. At least two possible avenues come to mind. First, it seems likely that individual accuracy would improve through training. Learning requires feedback, so providing feedback could be one simple approach to improving accuracy, and this approach might be strengthened by providing incentives. Second, accuracy might improve if teams or groups are allowed to communicate. This approach allows individuals to share facts and information while promoting heightened cognitive engagement and the careful processing of those facts through the consideration of reasoned arguments. On the one hand, team-based forecasting sometimes outperforms simple averaging (Ungar et al. 2012), but on the other hand, knowing others' beliefs can have the opposite effect, undermining the quality of group judgments (Lorenz et al. 2011).

Honesty is not a trait commonly ascribed to politicians, nor is politics a process that encourages truthfulness (Callander and Wilkie 2007, Woon and Kanthak 2016). Many candidates for office play fast and loose with the truth, aided and abetted by the media, especially when electoral competition is fierce and doing so appeals to their supporters and generates controversy. Yet honesty and integrity are key political virtues—valence characteristics that voters desire in representatives and public officials, and truthful communication is integral to making good policy through deliberation and the free exchange of ideas. Political lie detection is therefore an important tool of citizen competence and democratic accountability, and the evidence that the public has the ability to distinguish between true and false is encouraging.

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Appendix

The coefficient estimates for the main model specifications reported in the paper used to generate the predicted values in Figures 2 and 3 are reported in columns (1), (2), and (3) of Table A1. Columns (4), (5), and (6) report model estimates treating independent leaners as partisans.

Figure A1 shows estimates of the responsiveness of perceptions to the truth estimated separately for partisan subgroups and speakers. The plotted coefficient is the β estimate in a regression of perceptions on truth ratings, a treatment indicator, and a treatment-rating interaction: $P_{ij} = \alpha + \beta R_j + \gamma T_i + \lambda R_j \times T_i + \eta_j + \mu_i + \varepsilon_{ij}$. Except for a few cases (e.g., strong Republicans for Republican speakers in Wave 1, strong Republicans for Democratic speakers in Wave 3), most of the coefficients are positive and statistically significant. In Waves 1 and 2, there is minor variation in the coefficients across the partisan categories. In some cases (e.g. Democratic leaners in Wave 1, Republican leaners evaluating Democratic statements in Waves 1 and 2), leaners are somewhat more responsive to the truth than self-identified partisans. The coefficients vary much more across partisan categories in Wave 3. For Democratic speakers, the strength of responsiveness appears to be decreasing in the strength of partisanship (strong partisans least likely to be responsive) while there is something of a monotonic pattern for Republican speakers where strong Democrats are most responsive to the truth and strong Republicans are least responsive.

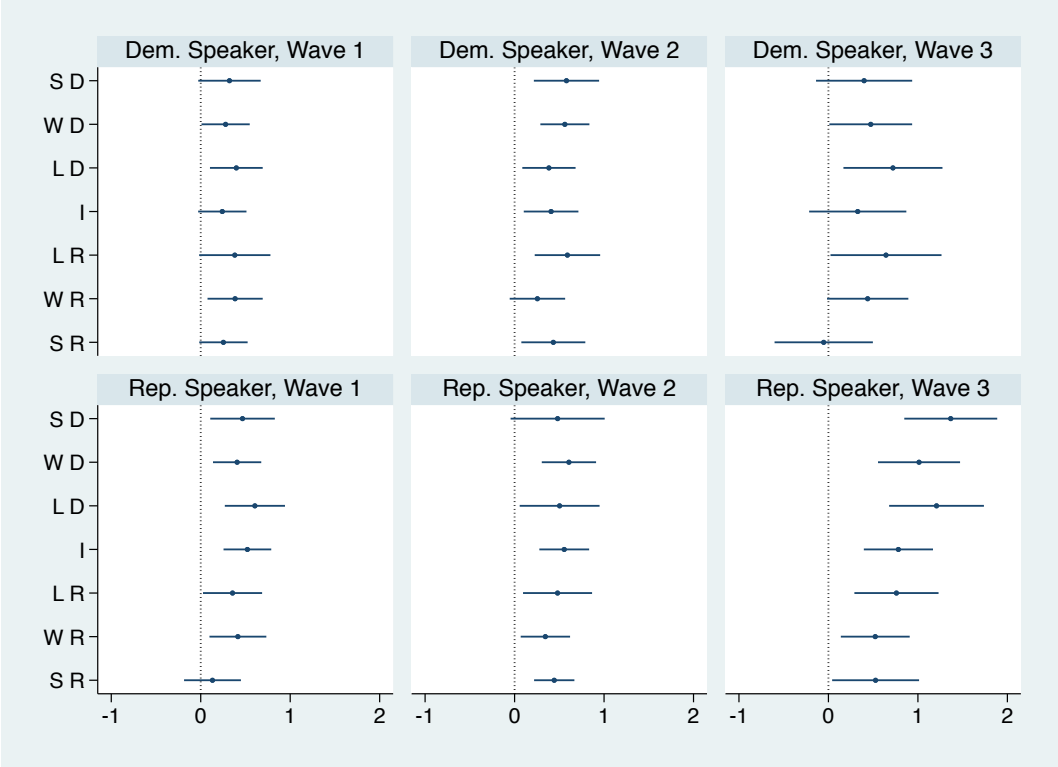

Figure A1: Responsiveness by wave, party of the speaker, and 7-point party identification

Table A1: Estimates for main interaction model reported in the text

	Main analysis			Leaners as partisans		
	Wave 1	Wave 2	Wave 3	Wave 1	Wave 2	Wave 3
	(1)	(2)	(3)	(4)	(5)	(6)
Co-partisans (δ_S)	0.11*	0.15*	0.26**	0.15	0.18*	0.16
	(0.06)	(0.06)	(0.08)	(0.07)	(0.09)	(0.10)
Cross-partisans (δ_X)	-0.16**	-0.18**	-0.09	-0.15*	-0.14	-0.25**
	(0.06)	(0.06)	(0.07)	(0.07)	(0.09)	(0.10)
Speaker Treatment (γ)	-0.05	0.02	0.06	-0.03	0.02	0.03
	(0.06)	(0.07)	(0.08)	(0.09)	(0.11)	(0.12)
Speaker	0.20*	0.14	0.36**	0.14	0.10	0.33*
× Co-partisans (γ_S)	(0.08)	(0.09)	(0.11)	(0.10)	(0.12)	(0.14)
Speaker	-0.06	-0.12	-0.23*	-0.07	-0.09	-0.18
× Cross-partisans (γ_X)	(0.08)	(0.09)	(0.11)	(0.10)	(0.12)	(0.14)
Truth rating (β)	0.44**	0.49**	0.74**	0.38**	0.51**	0.55**
	(0.09)	(0.10)	(0.16)	(0.10)	(0.12)	(0.18)
Truth rating	-0.12	-0.03	-0.21*	-0.04	-0.06	0.04
× Co-partisan (τ_S)	(0.06)	(0.07)	(0.09)	(0.08)	(0.09)	(0.10)
Truth rating	-0.02	-0.02	0.07	0.06	-0.03	0.30**
× Cross-partisan (τ_X)	(0.06)	(0.07)	(0.08)	(0.08)	(0.09)	(0.10)
Truth rating	-0.08	-0.04	-0.22**	-0.10	0.02	0.01
× Speaker (λ)	(0.06)	(0.07)	(0.08)	(0.09)	(0.12)	(0.12)
Truth × Speaker	0.08	-0.08	0.06	0.11	-0.13	-0.24
× Co-partisan (λ_S)	(0.09)	(0.10)	(0.12)	(0.11)	(0.13)	(0.15)
Truth × Speaker	0.08	-0.11	-0.07	0.07	-0.14	-0.33*
× Cross-partisan (λ_X)	(0.09)	(0.10)	(0.12)	(0.11)	(0.13)	(0.14)
Constant (α)	0.17*	0.10	0.12	0.16	0.07	0.22
	(0.07)	(0.07)	(0.11)	(0.09)	(0.09)	(0.13)
Observations	3,680	2,980	10,740	3,680	2,980	10,740
Log likelihood	-4,211.9	-3,474.2	-20,417.1	-4,191.4	-3,468.0	-20,373.0
χ^2	222.7	228.2	368.9	266.6	242.1	460.8

* $p < .05$ ** $p < .01$; multi-level mixed effects model with statement and respondent level random effects

Statements and PolitiFact ratings

Statements 1-20 were used in Waves 1 and 2. Statements 21-70 were used in Wave 3.

Statement	PolitiFact Rating
1. [Former Republican Congresswoman Michelle Bachmann said:] Our government right now. . . (is) spending 40 percent more than what we take in. http://www.politifact.com/truth-o-meter/statements/2011/oct/11/michele-bachmann/bachmann-right-spending/	TRUE
2. [Democratic presidential candidate Hillary Clinton said:] The top hedge fund managers (are) making more than all of America's kindergarten teachers combined. http://www.politifact.com/truth-o-meter/statements/2015/jun/15/hillary-clinton/hillary-clinton-top-hedge-fund-managers-make-more-/	TRUE
3. [Democratic Congresswoman Nancy Pelosi said:] More than 64 percent of minimum-wage earners are women. http://www.politifact.com/truth-o-meter/statements/2013/mar/13/nancy-pelosi/nancy-pelosi-says-64-percent-minimum-wage-earners-/	TRUE
4. [Republican Senator Mitch McConnell said:] The minimum wage is mostly an entry-level wage for young people. http://www.politifact.com/truth-o-meter/statements/2014/jan/26/mitch-mcconnell/mitch-mcconnell-says-minimum-wage-young-people-ent/	MOSTLY TRUE
5. [Republican Senator Ted Cruz said:] Today the top 1 percent earn a higher share of our national income than any year since 1928. http://www.politifact.com/texas/statements/2015/jan/30/ted-cruz/ted-cruz-says-top-1-percent-earn-more-national-inc/	MOSTLY TRUE
6. [Democratic President Barack Obama said:] By one leading measure, what business owners pay out in wages and salaries is now finally growing faster than what they spend on health insurance for the first time in 17 years. http://www.politifact.com/truth-o-meter/statements/2015/jun/30/barack-obama/are-wages-finally-growing-faster-health-insurance-/	MOSTLY TRUE
7. [Democratic presidential candidate Hillary Clinton said:] By 2006, the American people were overwhelmingly against the Iraq War. http://www.politifact.com/truth-o-meter/statements/2014/jun/20/hillary-clinton/hillary-clinton-says-2006-americans-were-overwhelm/	MOSTLY TRUE
8. [Former Republican Governor Mike Huckabee said:] $700 billion was robbed (from Medicare) to pay for Obamacare.	HALF TRUE

http://www.politifact.com/truth-o-meter/statements/2015/aug/07/mike-huckabee/obamacare-robbed-medicare-700-billion-says-huckabe/	
9. [Republican presidential candidate Donald Trump said:] The annual cost of free tax credits alone paid to illegal immigrants quadrupled to $4.2 billion in 2011. http://www.politifact.com/truth-o-meter/statements/2015/aug/18/donald-trump/trump-illegal-immigrants-four-two-billion/	HALF TRUE
10. [Democratic presidential candidate Bernie Sanders said:] We are the only major country on Earth that doesn't guarantee health care to all people as a right. http://www.politifact.com/truth-o-meter/statements/2015/jun/29/bernie-s/bernie-sanders-us-only-major-country-doesnt-guaran/	HALF TRUE
11. [Former Republican Governor Jeb Bush said:] There are over 100 pipelines between the United States and Canada right now. http://www.politifact.com/florida/statements/2014/mar/26/jeb-bush/while-talking-about-keystone-xl-pipeline-jeb-bush-/	MOSTLY FALSE
12. [Democratic President Barack Obama said:] The Keystone XL pipeline allows "Canada to pump their oil, send it through our land, down to the Gulf, where it will be sold everywhere else." http://www.politifact.com/truth-o-meter/statements/2014/nov/20/barack-obama/obama-says-keystone-xl-exporting-oil-experts-disag/	MOSTLY FALSE
13. [Democratic presidential candidate Barack Obama said:] The average minimum wage worker is 35 years old. http://www.politifact.com/truth-o-meter/statements/2014/apr/29/barack-obama/barack-obama-says-average-minimum-wage-worker-35-y/	MOSTLY FALSE
14. [Democratic presidential candidate Bernie Sanders said:] We have the highest rate of childhood poverty of any major country on Earth. http://www.politifact.com/truth-o-meter/statements/2015/jul/08/bernie-s/sanders-child-poverty-higher-america-any-other-maj/	MOSTLY FALSE
15. [Former Republican Congressman Tom Tancredo said:] Between 2008 and 2014, "criminal aliens accounted for 38 percent of all murder convictions in the five states of California, Texas, Arizona, Florida and New York." http://www.politifact.com/punditfact/statements/2015/aug/17/tom-tancredo/tancredo-muffs-illegal-immigrant-murder-stats/	FALSE
16. [Republican presidential candidate Donald Trump said:] If you're from Syria and you're a Christian, you cannot come into this country as a refugee. http://www.politifact.com/truth-o-meter/statements/2015/jul/20/donald-trump/donald-trump-says-if-youre-syria-and-christianyou-/	FALSE

17. [Democratic presidential candidate Hillary Clinton said:] Hedge fund managers "pay less in taxes than nurses and truck drivers." http://www.politifact.com/truth-o-meter/statements/2015/may/20/hillary-clinton/hillary-clinton-says-hedge-fund-managers-pay-less-/	FALSE
18. [Republican presidential candidate Donald Trump said:] The Mexican government forces many bad people into our country. http://www.politifact.com/truth-o-meter/statements/2015/jul/09/donald-trump/donald-trump-says-mexican-government-forces-many-b/	PANTS ON FIRE
19. [Republican Congressman Peter King said:] Nobody suffered any lasting injuries from the CIA interrogation program. http://www.politifact.com/truth-o-meter/statements/2014/dec/15/peter-king/peter-king-says-senate-cia-report-found-detainees-/	PANTS ON FIRE
20. [Democratic President Barack Obama said:] The Foreign Intelligence Surveillance Court "is transparent." http://www.politifact.com/truth-o-meter/statements/2013/jun/21/barack-obama/barack-obama-says-foreign-intelligence-surveillanc/	PANTS ON FIRE
21. [Former Republican Congresswoman Michelle Bachmann said:] When we got the income tax in 1913, the top rate was 7 percent. By 1980, the top rate was 70 percent. http://www.politifact.com/truth-o-meter/statements/2011/oct/18/michele-bachmann/michele-bachmann-says-top-income-tax-rate-rose-7-p/	TRUE
22. [Republican Senator Mitch McConnell said:] More women are graduating from college now than men. http://www.politifact.com/truth-o-meter/statements/2014/jul/18/mitch-mcconnell/mitch-mcconnell-says-more-women-graduate-college-m/	TRUE
23. [Republican President Donald Trump said:] Forty-three million Americans are on food stamps. http://www.politifact.com/truth-o-meter/statements/2016/jul/21/donald-trump/trump-43-million-americans-food-stamps/	TRUE
24. [Republican Senator Marco Rubio said:] Foreign aid is less than 1 percent of our federal budget. http://www.politifact.com/truth-o-meter/statements/2016/mar/11/marco-rubio/marco-rubio-says-foreign-aid-less-1-percent-federa/	TRUE
25. [Former Democratic presidential candidate Hillary Clinton said:] When it comes to fighting terrorism, "Another thing we know that does not work, based on lots of empirical evidence, is torture." http://www.politifact.com/truth-o-meter/statements/2016/mar/30/hillary-clinton/evidence-backs-hillary-clinton-claim-torture-count/	TRUE

26. [Democratic Senator Chris Murphy said:] "Ninety percent of Americans want our background check system strengthened and expanded to cover more gun sales." http://www.politifact.com/truth-o-meter/statements/2016/jul/27/chris-murphy/dnc-sen-chris-murphy-says-90-americans-want-expand/	TRUE
27. [Former Democratic presidential candidate Bernie Sanders said:] The United States spends "almost three times per capita what they spend in the U.K." on health care and "50 percent more than they pay in France." http://www.politifact.com/truth-o-meter/statements/2015/dec/20/bernie-s/fact-checking-bernie-sanders-claim-us-spends-three/	TRUE
28. [Former Democratic presidential candidate Hillary Clinton said:] African-American children are 500 percent more likely to die from asthma than white kids. http://www.politifact.com/truth-o-meter/statements/2015/aug/11/hillary-clinton/clinton-accurately-says-black-children-asthma-have/	TRUE
29. [Former Democratic presidential candidate Hillary Clinton said:] Americans haven't had a raise in 15 years. http://www.politifact.com/iowa/statements/2016/mar/11/hillary-clinton/hillary-clinton-ad-points-out-its-been-15-years-am/	MOSTLY TRUE
30. [Former Democratic Governor Martin O'Malley said:] Fifty years ago, the average GM employee could pay for a year of a son or daughter's college tuition on just two weeks wages. http://www.politifact.com/truth-o-meter/statements/2016/jan/25/martin-omalley/could-gm-worker-afford-college-tuition-just-two-we/	MOSTLY TRUE
31. [Former Democratic presidential candidate Bernie Sanders said:] "The top one-tenth of 1 percent" of Americans "own almost as much wealth as the bottom 90 percent." http://www.politifact.com/truth-o-meter/statements/2016/jul/26/bernie-s/dnc-bernie-sanders-repeats-claim-top-one-tenth-1-o/	MOSTLY TRUE
32. [Former Democratic President Barack Obama said:] Iran's defense budget is $30 billion. Our defense budget is closer to $600 billion. http://www.politifact.com/truth-o-meter/statements/2015/apr/09/barack-obama/obama-iran-spends-30-billion-defense-us-about-600-/	MOSTLY TRUE
33. [Former Democratic presidential candidate Bernie Sanders said:] For African-Americans between the ages of 17 and 20, "the real unemployment rate is 51 percent." http://www.politifact.com/truth-o-meter/statements/2015/jul/13/bernie-s/bernie-sanders-says-real-unemployment-rate-african/	MOSTLY TRUE
34. [Republican Senator Ted Cruz said:] Today the top 1 percent earn a higher share of our national income than any year since 1928. http://www.politifact.com/texas/statements/2015/jan/30/ted-cruz/ted-cruz-says-top-1-percent-earn-more-national-inc/	MOSTLY TRUE

35. [Republican President Donald Trump said:] Household incomes are down more than $4,000 since the year 2000. http://www.politifact.com/truth-o-meter/statements/2016/jul/21/donald-trump/donald-trump-largely-right-household-incomes-are-d/	MOSTLY TRUE
36. [Republican President Donald Trump said:] Ford is moving all of their small-car production to Mexico. http://www.politifact.com/truth-o-meter/statements/2016/oct/23/donald-trump/donald-trump-says-ford-moving-all-small-car-produc/	MOSTLY TRUE
37. [Republican Senator Ted Cruz said:] We've got the lowest labor force participation in over three decades, since 1978. http://www.politifact.com/truth-o-meter/statements/2014/jan/26/ted-cruz/labor-force-participation-its-lowest-point-1978-sa/	MOSTLY TRUE
38. [Former Republican Governor Jeb Bush said:] There are more poor people today as a percentage of our population than the 1970s. http://www.politifact.com/florida/statements/2015/may/07/jeb-bush/poverty-rate-higher-now-1970s/	MOSTLY TRUE
39. [Former Democratic presidential candidate Bernie Sanders said:] The United States has "the highest rate of childhood poverty of almost any major country on Earth." http://www.politifact.com/truth-o-meter/statements/2016/feb/12/bernie-s/comparing-us-world-childhood-poverty-rates/	HALF TRUE
40. [Former Democratic Vice President Joe Biden said:] The vast majority of our international commitments take effect without congressional approval. http://www.politifact.com/truth-o-meter/statements/2015/mar/12/joe-biden/joe-biden-says-vast-majority-international-commitm/	HALF TRUE
41. [Former Democratic Governor Martin O'Malley said:] 97 percent of the work that Planned Parenthood does is about mammograms and preventative health. http://www.politifact.com/truth-o-meter/statements/2015/aug/03/martin-omalley/97-planned-parenthoods-work-mammograms-preventive-/	HALF TRUE
42. [Former Democratic Senator Barbara Boxer said:] Women take birth control, more than half of them, as a medication for other conditions. http://www.politifact.com/truth-o-meter/statements/2014/mar/26/barbara-boxer/barbara-boxer-says-more-half-women-use-birth-contr/	HALF TRUE
43. [Former Democratic presidential candidate Bernie Sanders said:] We spend about 75 percent of the entire cost of the military aspect of NATO. http://www.politifact.com/truth-o-meter/statements/2016/apr/19/bernie-s/sanders-oversimplifies-us-share-NATO/	HALF TRUE

44. [Republican President Donald Trump said:] Nearly half of African-American children under the age of 6 are living in abject poverty. http://www.politifact.com/truth-o-meter/statements/2016/oct/28/donald-trump/donald-trump-says-half-young-black-children-are-ab/	HALF TRUE
45. [Former Republican Senator Tom Coburn said:] The home-mortgage deduction is widely thought to be a middle-class benefit. It's not -- 73 percent of it goes to people making a quarter-million dollars or more a year. http://www.politifact.com/truth-o-meter/statements/2014/dec/17/tom-coburn/coburn-says-73-percent-benefits-mortgage-deduction/	HALF TRUE
46. [Republican Senator Marco Rubio said:] Two-thirds of our kids can't read at grade level. http://www.politifact.com/truth-o-meter/statements/2016/feb/18/marco-rubio/marco-rubio-says-two-thirds-us-kids-cant-read-grad/	HALF TRUE
47. [Republican President Donald Trump said:] "We've spent $6 trillion" on the wars in the Middle East. http://www.politifact.com/truth-o-meter/statements/2016/oct/27/donald-trump/did-us-spend-6-trillion-middle-east-wars/	HALF TRUE
48. [Republican Senator Marco Rubio said:] The states have always defined marriage. http://www.politifact.com/truth-o-meter/statements/2015/dec/13/marco-rubio/marco-rubio-says-states-have-always-defined-marria/	HALF TRUE
49. [Former Democratic presidential candidate Hillary Clinton said:] The Great Recession emerged "in large part because of tax policies that slashed taxes on the wealthy, failed to invest in the middle class, took their eyes off of Wall Street, and created a perfect storm." http://www.politifact.com/truth-o-meter/statements/2016/oct/02/hillary-clinton/hillary-clintons-base-linkage-tax-cuts-and-great-r/	MOSTLY FALSE
50. [Former Democratic presidential candidate Hillary Clinton said:] Marijuana is a Schedule I drug, "which you understand means that you can't do any research about it." http://www.politifact.com/truth-o-meter/statements/2016/apr/26/hillary-clinton/hillary-clintons-hazy-claim-researchers-cant-study/	MOSTLY FALSE
51. [Former Democratic presidential candidate Bernie Sanders said:] Very little of (the defense) budget — less than 10 percent — actually goes into fighting ISIS and international terrorism. http://www.politifact.com/truth-o-meter/statements/2016/jan/18/bernie-s/less-10-percent-defense-budget-fighting-terrorism-/	MOSTLY FALSE
52. [Former Democratic presidential candidate Bernie Sanders said:] Increasing the minimum wage to $15 an hour would reduce spending on food stamps, public housing and other programs by over $7.6 billion a year. http://www.politifact.com/truth-o-meter/statements/2016/may/05/bernie-s/bernie-sanders-says-minimum-wage-hike-15-would-red/	MOSTLY FALSE

53. [Former Democratic presidential candidate Bernie Sanders said:] We are imprisoning or giving jail sentences to young people who are smoking marijuana. http://www.politifact.com/truth-o-meter/statements/2015/oct/14/bernie-s/bernie-sanders-says-people-are-getting-prison-sent/	MOSTLY FALSE
54. [Republican Senator Ted Cruz said:] The Supreme Court's views "are radically out of step with public opinion" regarding its decision to legalize same-sex marriage nationwide. http://www.politifact.com/truth-o-meter/statements/2015/jul/01/ted-cruz/ted-cruz-says-supreme-court-same-sex-marriage-out-/	MOSTLY FALSE
55. [Republican White House Budget Director Mick Mulvaney said:] There's no demonstrable evidence they (after-school programs that feed kids) are helping kids do better at school. http://www.politifact.com/truth-o-meter/statements/2017/mar/21/mick-mulvaney/wh-budget-chief-wrongly-claims-afterschool-program/	MOSTLY FALSE
56. [Republican president Donald Trump said:] Hundreds of thousands of (illegal immigrants are) going to state and federal penitentiaries. http://www.politifact.com/truth-o-meter/statements/2015/jul/06/donald-trump/trump-immigration-claim-has-no-data-back-it/	MOSTLY FALSE
57. [Republican Senator Ted Cruz said:] States not directly involved in the gay marriage lawsuits that reached the Supreme Court "are not bound" by the court's ruling. http://www.politifact.com/texas/statements/2015/jul/31/ted-cruz/ted-cruz-states-not-singled-out-supreme-court-not-/	MOSTLY FALSE
58. [Former Democratic presidential candidate Hillary Clinton said:] We are now, for the first time ever, energy independent. http://www.politifact.com/truth-o-meter/statements/2016/oct/11/hillary-clinton/clinton-claim-us-energy-independent-goes-too-far/	FALSE
59. [Former Democratic Governor Howard Dean said:] Hate speech is not protected by the first amendment. http://www.politifact.com/truth-o-meter/statements/2017/apr/21/howard-dean/howard-deans-wrong-tweet-constitution-doesnt-prote/	FALSE
60. [Former Democratic presidential candidate Hillary Clinton said:] The gun industry is "the only business in America that is wholly protected from any kind of liability." http://www.politifact.com/truth-o-meter/statements/2015/oct/16/hillary-clinton/clinton-gun-industry-wholly-protected-all-lawsuits/	FALSE
61. [Former Democratic presidential candidate Bernie Sanders said:] We spend almost twice as much per capita on health care as do the people of any other country. http://www.politifact.com/truth-o-meter/statements/2015/aug/16/bernie-s/bernie-sanders-repeats-flawed-claim-about-us-healt/	FALSE

62. [Republican President Donald Trump said:] We have become an energy exporter for the first time ever just recently. http://www.politifact.com/truth-o-meter/statements/2017/aug/23/donald-trump/donald-trump-wrongly-says-us-net-energy-exporte/	FALSE
63. [Republican EPA Administrator Scott Pruitt said:] Carbon dioxide is not "a primary contributor to the global warming that we see." http://www.politifact.com/truth-o-meter/statements/2017/mar/10/scott-pruitt/epa-head-scott-pruitt-says-carbon-dioxide-not-prim/	FALSE
64. [Former Republican Vice President Dick Cheney said:] Saddam Hussein "had a 10-year relationship with al-Qaida." http://www.politifact.com/punditfact/statements/2014/dec/14/dick-cheney/cheney-torture-report-saddam-hussein-had-10-year-r/	FALSE
65. [Former Republican Senator Rick Santorum said:] "The 97 percent figure that's thrown around" (that 97 percent of scientists believe humans are causing climate change) has been debunked by the head of the United Nations Intergovernmental Panel on Climate Change. "That number was pulled out of thin air." http://www.politifact.com/truth-o-meter/statements/2015/sep/02/rick-santorum/santorum-un-climate-head-debunked-widely-cited-97-/	FALSE
66. [Republican HUD Secretary Ben Carson said:] Every time we raise the minimum wage, the number of jobless people increases. http://www.politifact.com/truth-o-meter/statements/2015/nov/10/ben-carson/ben-carson-said-raising-minimum-wage-will-increase/	FALSE
67. [Democratic Senator Dick Durbin said:] We're going to reduce the overall debt of the United States by $3 trillion over the next 10 years. http://www.politifact.com/truth-o-meter/statements/2014/feb/25/richard-durbin/dick-durbin-says-us-debt-track-fall-3-trillion-nex/	PANTS ON FIRE
68. [Former Democratic Senator Harry Reid said:] Planned Parenthood is "the only health care that a significant number of women get. About 30 percent of women, that's their health care." http://www.politifact.com/truth-o-meter/statements/2015/jul/31/harry-reid/harry-reid-says-30-women-rely-only-planned-parenth/	PANTS ON FIRE
69. [Republican Representative Raul Labrador said:] Nobody dies because they don't have access to health care. http://www.politifact.com/truth-o-meter/statements/2017/may/08/raul-labrador/raul-labradors-claim-no-one-dies-lack-health-care-/	PANTS ON FIRE
70. [Republican Representative Louie Gohmert said:] Forty years ago, hardly anybody in the country had health insurance. http://www.politifact.com/truth-o-meter/statements/2014/jan/24/louie-gohmert/texas-rep-louie-gohmert-says-40-years-ago-hardly-a/	PANTS ON FIRE

Familiarity and perceptions of bias in fact-checking sites

The tables below report within-column percentages. Results include all respondents who completed the demographic and political survey and correctly answered the screener question.

PolitiFact

	Not familiar at all	Somewhat or moderately familiar	Very or extremely familiar
Generally or mostly fair	16%	48%	86%
No opinion	74%	36%	6%
Generally or mostly biased	11%	16%	8%
N	394	230	85

FactCheck.org

	Not familiar at all	Somewhat or moderately familiar	Very or extremely familiar
Generally or mostly fair	16%	46%	76%
No opinion	76%	41%	16%
Generally or mostly biased	8%	13%	8%
N	302	302	105

Washington Post Fact Checker

	Not familiar at all	Somewhat or moderately familiar	Very or extremely familiar
Generally or mostly fair	16%	35%	54%
No opinion	67%	42%	18%
Generally or mostly biased	18%	23%	28%
N	455	214	40

Sample Characteristics

	Wave 1	Wave 2	Wave 3	2012 ANES
Sex				
Male	40%	49%	43%	54%
Female	60%	51%	57%	46%
Race				
White	81%	81%	79%	92%
Other	19%	19%	21%	8%
Age				
18-24	14%	14%	13%	3%
25-44	51%	62%	61%	18%
45-64	31%	20%	23%	47%
65+	4%	4%	3%	32%
Education				
Less than high school	2%	0%	1%	1%
High school / GED	9%	12%	11%	21%
Some college	26%	20%	23%	25%
Associate degree	12%	12%	12%	10%
Bachelor degree	37%	36%	38%	29%
Post-graduate degree	14%	20%	15%	13%
N	184	221	791	