

## Facts and Myths about Misperceptions

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### Abstract

Misperceptions threaten to warp mass opinion and public policy on controversial issues in politics, science, and health. What explains the prevalence and persistence of these false and unsupported beliefs, which seem to be genuinely held by many people? Though limits on cognitive resources and attention play an important role, many of the most destructive misperceptions arise in domains where individuals have weak incentives to hold accurate beliefs and strong directional motivations to endorse beliefs that are consistent with a group identity such as partisanship. These tendencies are often exploited by elites, who frequently create and amplify misperceptions to influence elections and public policy. Though evidence is lacking for claims of a “post-truth” era, changes in the speed with which false information travels and the extent to which it can find receptive audiences require new approaches to counter misinformation. Reducing the propagation and influence of false claims will require further efforts to inoculate people in advance of exposure (e.g., media literacy), debunk false claims that are already salient or widespread (e.g., fact-checking), reduce the prevalence of low-quality information (e.g., changing social media algorithms), and discourage elites from promoting false information (e.g., strengthening reputational sanctions).

On August 7, 2009, former vice presidential candidate Sarah Palin reshaped the debate over the Patient Protection and Affordable Care Act when she published a Facebook post falsely claiming that “my parents or my baby with Down Syndrome will have to stand in front of [Barack] Obama’s ‘death panel’ so his bureaucrats can decide... whether they are worthy of health care.” Palin’s claim was quickly amplified by the media and in town halls with members of Congress. Within two weeks, 86 percent of Americans said they had heard “a lot” (41 percent) or “a little” (45 percent) about the myth, which three in ten people reported believing, including 47 percent of Republicans (Pew Research Center 2009). Notably, those Republicans who saw themselves as more knowledgeable about the Obama plan were significantly more likely to endorse the myth (Nyhan 2010), which accordingly persisted for years afterward.

The Affordable Care Act was ultimately enacted into law in 2010, but the “death panel” myth appeared to exert an important influence on the debate over end-of-life care. Most notably, a provision to have Medicare cover doctors’ voluntary discussions with patients about end-of-life care — a policy that previously had bipartisan support — was stripped from the bill to avoid inflaming the issue further. The Obama administration later enacted this provision via regulation in 2015.

As the “death panel” myth illustrates, misperceptions threaten to warp mass opinion, undermine democratic debate, and distort public policy on issues ranging from climate change to vaccines. I define misperceptions as belief in claims that can be shown to be false (for example, that Osama bin Laden is still alive) or unsupported by convincing and systematic evidence (for example, that vaccines cause autism). In turn, I define the false or unsupported claims that help create these beliefs as misinformation. Unlike terms like “lie” and “disinformation,” this approach does not require knowledge of a speaker’s intent in making claims, which can rarely be established with certainty (it is unknown, for instance, whether Palin sincerely believed there would be a “death panel” or intended to deceive her audience). Moreover, focusing on both false and unsupported claims appropriately encompasses a great deal of dubious information – such as the existence of hidden and unobserved conspiracies – that cannot be directly disproven and would be excluded by a strict insistence on falsity. However, judgment is still required about which beliefs qualify as misperceptions. For instance, some scientific findings are backed by highly credible evidence (e.g., the role of humans in climate change), while others are more uncertain (e.g., how changes in diet affect health).

In politics, the sources of – and belief in – dubious claims that meet this standard often divide along partisan lines. On the issue of health care, for instance, Politifact selected Palin’s “death panel” claim as its “Lie of the Year” in 2009 and then in 2013 chose the oft-repeated claim by Barack Obama that “if you like your health care plan, you can keep it” under the Affordable Care Act (Holan 2009, 2013). Public beliefs in such claims are frequently associated with people’s candidate preferences and partisanship. A December 2016 YouGov poll found, for instance, that 62 percent of Trump supporters endorsed the baseless claim that millions of illegal votes were cast in the 2016 election compared to 25 percent of supporters of Hillary Clinton (Frankovic 2016). Conversely, 50 percent of Clinton voters endorsed the false claim that Russia tampered with vote tallies to help Trump compared to only 9 percent of Trump voters. However, not all political misperceptions have a clear partisan valence – for example, 17 percent of Clinton supporters and 15 percent of Trump supporters in the same poll said the U.S. government helped plan the September 11 terrorist attacks.

Misperceptions like these often linger for years despite extensive efforts to correct the record. The same December 2016 YouGov poll found, for instance, that 36 percent of Americans think

President Obama was born in Kenya, 53 percent believe there were weapons of mass destruction in Iraq that were never found, and 31 percent believe vaccines have been shown to cause autism — all claims that have been repeatedly and systematically debunked (Frankovic 2016).

In this article, I first consider the evidence that misperceptions represent genuine beliefs and are not just artifacts of question wording, partisan cheerleading, or “trolling.” I then examine the psychological factors that increase vulnerability to misperceptions, especially consistency with political predispositions or group identity. Next, I turn to the sources of the false and unsupported claims that help to create and disseminate misperceptions, especially political elites and social media platforms. I then consider how misperceptions might be reduced, comparing demand-side approaches in education and journalism with supply-side interventions that try to dissuade elites from promoting misinformation or seek to limit its spread. In each case, I argue, we must carefully assess the merits of these policies rather than rushing into ill-considered responses based on media hype; misperceptions present a serious problem but claims that we live in a “post-truth” society with widespread consumption of “fake news” are not empirically supported and should not be used to support interventions that threaten democratic values.

### **Measuring Misperception Beliefs and Effects**

Evidence about the prevalence of misperceptions and the characteristics of the people who hold them are typically measured using survey questions. These data were collected via phone or face-to-face interviews in the past but are increasingly gathered online today. Such studies typically ask people whether they believe in or agree with various true and false claims or ask them to select which statement best represents their beliefs about a disputed factual issue. These findings thus have all the standard limitations of survey data such as potential sensitivity to question wording and sampling error. However, several concerns are particularly acute in the study of misconceptions.

First, available survey data is skewed toward items measuring belief in politically controversial or polarizing misperceptions. Though these misperceptions are often the most widely covered in the media, they are not necessarily representative of the set of false beliefs Americans hold, which are frequently bipartisan. For example, Graham (2020) finds that both Republicans and Democrats were (mistakenly) confident that crime and the federal budget deficit increased during the Obama presidency. Second, the survey format, which requires respondents to construct responses in a top-of-head fashion, is vulnerable to respondents reporting beliefs they did not previously hold with certainty or would not otherwise express. Graham finds that respondents are more likely to identify incorrect responses as low-certainty guesses, suggesting they often recognize what they don’t know.

In addition, factual questions about politically controversial topics or figures can be vulnerable to “partisan cheerleading” (providing inauthentic responses that are politically congenial). To test this conjecture, Bullock et al. (2015) and Prior, Sood, and Khanna (2015) conduct experiments among convenience samples of U.S. respondents estimating the effect of financial incentives for accuracy on partisan polarization in factual questions about politics. Both find that the presence of incentives (payments for correct answers from \$.10 to \$2 or improved chances in a lottery with a payout of \$200) reduced the partisan divide in expressed factual beliefs by more than 50%. However, these results do not necessarily indicate that people secretly hold more accurate and/or less polarized beliefs with certainty that they otherwise refuse to report. Respondents may instead use different,

less error-prone guessing strategies in response to financial incentives or devote greater cognitive effort to the task than they would in real-world settings (where accuracy incentives are weak).

These problems are most severe for when people provide insincere responses (sometimes for partisan reasons) or providing insincere responses for fun or amusement (“trolling”). For example, Schaffner and Luks (2018) showed respondents pictures of the inauguration crowds from the inauguration of President Obama in 2009 and President Trump in 2017. When the pictures were unlabeled, there was broad agreement that the Obama crowd was larger, but when the pictures were labelled, many Trump supporters looked at the pictures and indicated that Trump’s crowd was larger, an obviously false claim that the authors refer to as “expressive responding.” Lopez and Hillygus (2018) consider the related problem of “survey trolls,” which they show can inflate reported beliefs in misperceptions. This problem seems most severe for unfamiliar and outlandish rumors (e.g., Senator Ted Cruz is the Zodiac killer), where they find half or more of those indicating belief in the claim repeatedly offer unlikely responses to other questions or admit to trolling.

However, evidence suggests that surveys can provide meaningful measures of belief in prominent misperceptions. First, reported partisan differences in salient, controversial factual beliefs persist even when incentives are provided. When Peterson and Iyengar (N.d.) offered incentives of \$.50 per question for correct answers to questions that feature ongoing factual controversy, they found that substantial partisan gaps persist – approximately two-thirds of the initial unincentivized beliefs. Similarly, Berinsky (2018) finds that providing non-financial incentives designed to reduce expressive responding (including making a survey five minutes shorter if respondents did not indicate believing in a false claim) repeatedly had null effects on reported beliefs in the false claims that Barack Obama is Muslim and that the Bush administration assisted or allowed the September 11, terrorist attacks. Most recently, Allcott et al. (N.d.) find that financial incentives (entries in lotteries with payments of up to \$100 depending on response accuracy) decrease the partisan divide in expected approval of President Trump’s handling of the coronavirus outbreak at the end of April 2020, but had no effect or modestly *increased* the divide in the expected number of cases at that time, suggesting that partisans were being sincere when Republicans rated the pandemic as less severe than Democrats.

We also observe important differences in high-stakes behaviors by partisanship that are consistent with sincere (and often unsupported) differences in factual belief. First, Krupenkin (N.d) finds that co-partisans express more trust in vaccine safety and greater intention to vaccinate themselves and their children than opposition partisans. These patterns, which were observed during both the administrations of George W. Bush and Barack Obama, are associated with changes in real-world behavior (though medical privacy laws and ecological inference concerns limit what can be demonstrated directly). After President Obama took power, she shows, vaccination exemption rates increased differentially in Republican school districts in California compared to Democratic ones. Krupenkin, Rothschild, and Hill (N.d.) similarly find searches for cars and houses differentially decreased among Democrats after the 2016 election and that registrations of new cars increased less in Democratic-leaning zip codes than Republican ones. Finally, Allcott et al. (N.d.) find that the individual-level partisan differences in perceived COVID-19 severity they observe in their incentivized survey data are mirrored in differences in cellphone-based measures of mobility during the pandemic between Democratic and Republican counties. These examples suggest that partisan differences in factual beliefs can affect real-world decisions and are not just cheap talk.

Less is known about the effects on misperceptions on political attitudes and policy outcomes. Misperceptions are often associated with individual-level policy and candidate preferences (for example, opponents of the Patient Protection and Affordable Care Act are more likely to believe in “death panels”), but we lack a systematic understanding for when factual beliefs are the basis for a preference versus a rationalization for a preference that a respondent would hold anyway.

To disentangle this relationship, researchers often randomize the provision of factual information, but results from this literature are mixed. Some studies find no effect of corrections on related policy or candidate preferences. For example, Nyhan et al. (2019) carried out parallel experiments via Amazon Mechanical Turk and the survey research firm Morning Consult during the 2016 campaign in which respondents were randomized to view different versions of a journalistic fact-check of candidate Trump. Exposure to this information reduced misperceptions about the factual issue in question (changes in the prevalence of crime) but had no measurable effect on candidate support. Similarly, Hopkins et al. (2019) find across seven studies that providing information about the actual number of immigrants (which people often exaggerate) has little effect on attitudes toward immigration policy. However, other research indicates that views or preferences can change after respondents receive accurate information. For example, learning who actually pays the estate tax in a survey experiment led to increased support for the tax, especially among conservatives and Republicans with lower incomes (Sides 2016). In addition, a nationally representative survey experiment found that providing specific facts about issues like crime rates or the share of federal spending going to foreign aid affected people’s policy opinions (Gilens 2001). These effects were greatest, though, for people who were already highly knowledgeable about politics.

These results suggest that factual beliefs are not always the basis for people’s policy opinions and candidate preferences. Future research should seek to develop and test cross-domain theories about the conditions under which accurate information will change people’s views – for instance, is attitude change in response to new factual information more likely when partisan cues or predispositions are weak or when respondents are “cross-pressured” by competing motives?

Determining the effect of misinformation and misperceptions on media coverage and policy outcomes is an important topic but faces even more difficult theoretical and research design challenges. For example, though debates over the Affordable Care Act and end-of-life care were surely affected by misinformation, we cannot easily estimate the difference between what took place and a counterfactual version of the debate in which the “death panel” and “if you like your health plan...” claims were never made. Moreover, any such differences could prove to be partial equilibrium effects. If those claims had failed to take hold, politicians and interest groups might have promoted other misperceptions instead.

### **Individual-level Vulnerabilities to Misperceptions**

What factors make people vulnerable to believing in misperceptions? A critical, and often neglected, step is simple exposure. People are more likely to endorse claims to which they have been exposed absent effortful resistance (Gilbert, Tafarodi, and Malone 1993). Moreover, such exposure can lead people to be more likely to endorse a claim to which they have previously been exposed even if the claim is implausible or if they possess the relevant knowledge to know that the claim is inaccurate. For example, Fazio et al. (2015) finds a greater proportion of “true” ratings among undergraduates when evaluating claims like “The Atlantic Ocean is the largest ocean on Earth” if they had been

randomly exposed to it before. This “illusory truth” effect seems to be the result of people using the feeling of fluency they experience when processing a familiar claim as a heuristic for truth.

These exposure effects are most likely to cumulate for people who pay more attention to potentially misleading news and information. As consumer choice has grown, differences in news consumption have widened (Prior 2005), including consumption of news from outlets that promote low-quality information. During the final weeks of the 2016 campaign, for instance, more than six in ten visits to websites that have been identified as untrustworthy by journalists and human coders came from approximately 20% of the U.S. population (Guess, Nyhan, and Reifler 2020). Similarly, Pew found that the top third of cable news viewers average 72 minutes per day compared to three minutes and less than one minute, respectively, for the bottom two terciles (Jurkowitz and Mitchell 2013). Correspondingly, consumers of ideological and partisan news on television and online are more likely to hold misperceptions (Kull, Ramsay, and Lewis 2003; Garrett, Weeks, and Neo 2016), though establishing the direction of causality is not possible using cross-sectional observational data.

Beyond mere exposure effects, misperceptions are more likely to form and spread when people fail to apply adequate cognitive scrutiny or attention to dubious claims they encounter. One risk factor is a tendency to rely on intuitive rather than analytical thinking. Pennycook and Rand (2019) seek to evaluate this claim using performance on the Cognitive Reflection Test (CRT), a three-item battery of mathematical questions in which respondents must resist selecting an intuitive but incorrect answer and instead identify the correct answer through analytical reasoning. They found that CRT performance was correlated with the ability to distinguish between false and real news among 3,400 respondents recruited on Amazon Mechanical Turk. Similarly, reminders of accuracy (by being asked a question about whether a headline was accurate) reduced both intentions to share false news headlines that respondents could identify as false when asked and real-world sharing of information from untrustworthy websites on Twitter (Pennycook et al. 2020). These results suggest that accuracy considerations are given less attention by default. Finally, people may be particularly vulnerable to misinformation from trusted sources given the way many use source identity as a heuristic for accuracy. In a study conducted using Amazon Mechanical Turk, Swire et al. (2017) find, for example, that attributing claims to Trump increased belief in them among his Republican supporters and decreased belief in them among Democrats.

People do not necessarily accept every piece of information they encounter, however. Instead, many seem especially susceptible to misperceptions that are consistent with their beliefs, attitudes, or group identity. Their psychological motivation to believe one side of a factual question seems to overwhelm their motivation to hold an accurate belief (Kunda 1990). As a result of this predisposition, which is known as directionally motivated reasoning, we may be more skeptical of information that contradicts our preferences and more accepting of confirmatory information. Ditto and Lopez (1992) find, for example, that people who receive unwelcome medical news are more likely to question the result.

These tendencies can be especially powerful in contexts like politics where people often have strong directional preferences between parties or candidates, weak accuracy motives, and lack evidence that would resolve factual disputes.<sup>1</sup> Taber and Lodge (2006) find that participants were more likely to

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<sup>1</sup> Current research seeks to propose and test models of directionally motivated reasoning showing how people deviate from the Bayesian ideal when updating their beliefs (e.g., Fryer Jr, Harms, and Jackson 2018; Thaler N.d.). See the recent *JEP* symposium for further discussion (Epley and Gilovich 2016, Bénabou and Tirole 2016, Golman et al. 2016).

counter-argue contradictory arguments about affirmative action and gun control and differentially accepting of those that reinforced their views. Such tendencies can also influence beliefs about outgroups. People are prone to hold negative false beliefs about individuals who differ from them — for example, on racial, ethnic, or religious grounds. For example, Jardina and Traugott (2019) find that belief in the myth in the “birther” myth that Barack Obama was not born in the U.S. was strongly associated with a survey scale measuring feelings of racial resentment among white respondents in the 2012 American National Election Study.

A particular analytical challenge is distinguishing between directionally motivated reasoning and differences in information evaluation resulting from differing priors, which are often observationally equivalent despite occurring via different processes (Druckman and McGrath 2019, Tappin, Pennycook, and Rand 2020). Isolating directionally motivated reasoning requires experimental designs that hold information fixed and manipulate processing goals. For instance, Kahan et al. (2017) presented respondents with a 2×2 table that was alternately labeled as presenting outcomes from tests of skin cream (rashes) or a ban on concealed carry for handguns (crime). The table is designed to suggest an intuitive but false answer based on the raw totals; respondents have to instead compute the relevant conditional probabilities to assess effectiveness. Respondents were far more polarized by partisanship and ideology over the accuracy of the test when the table concerned gun control, indicating that directional motivations influenced how the data was being processed.

Vulnerability to misinformation may also vary depending on people’s knowledge and sophistication. Theoretically, being better informed might seem to protect people against holding inaccurate beliefs. However, people who are more knowledgeable are better able to identify congenial claims and reject those that are uncongenial (Zaller 1992). In the Kahan et al. (2017) study described above, for instance, polarization in interpretation of the data depending on whether it was labeled as concerning skin cream or gun control was greatest among the most numerate respondents, who still tended to accept the intuitive answer when it was congenial but were able to figure out the correct answer when the intuitive answer was uncongenial. Similarly, Republicans who were more politically knowledgeable were *more* likely to endorse a conspiracy theory about Barack Obama manipulating unemployment statistics than less knowledgeable co-partisans (Nyhan 2012).

## **The Supply of Misinformation**

Widespread public misperceptions often originate in dubious allegations made by prominent political figures and groups or false rumors circulating via online or offline networks. These supply-side factors can play a critical role in the availability and salience of misinformation as well as the extent to which specific claims come to be widely believed.

Political misinformation often originates at the elite level from sources such as politicians, pundits, and ideological or partisan groups and media outlets. Though exceptions exist (for example, conspiracy theories about 9/11), elites have played a key role in creating or popularizing many of the most salient misperceptions of recent years, including the “death panel” myth and the false claims that Barack Obama is a Muslim or not born in this country.

Climate change denial provides a valuable illustration of how information flows from elites can lead to widespread misperceptions. Conservatives were actually more likely than liberals to believe scientists about climate change in the 1990s before it became a partisan issue (Tesler 2018). As

messages from conservative elites and Republican officials denying climate change became more widespread and salient, however, belief polarization on the issue increased (McCright and Dunlap 2011). The issue is not ignorance; Democrats and Republicans have similar levels of knowledge about science (Kennedy and Hefferon 2019). Instead, the relationship between general scientific knowledge and belief in anthropogenic climate differs sharply by party. Conservative Republicans who know more about science know more about what climate scientists believe; they simply do not endorse those claims (Kahan 2015). The most plausible mechanism for this finding is elite information flows – Tesler (2018) finds that climate denial is greatest among the conservatives with high political interest and education who are most likely to have received the messages in question.

The incentives for political figures and groups to make such claims are clear in an era in which the ideological polarization between the parties in Congress has reached historic levels (Poole and Rosenthal 2011) and partisans in the mass public express increasingly hostile feelings toward the opposition (Iyengar and Westwood 2014). Changes in media and communication have also reduced the costs of information distribution and allowed these polarized elites to communicate in a less filtered and more targeted manner with like-minded audiences (via social media, cable news, etc.).

Economic incentives also clearly play an important role in encouraging the production of false and misleading information. Michael Moore’s films “Bowling for Columbine” (2002) and “Fahrenheit 9/11” (2004), for instance, raked in huge box office totals by documentary standards by appealing to liberals who opposed George W. Bush with inaccuracies and misleading innuendo (Nyhan 2004). Similar incentives encourage hosts on talk radio and cable news to promote misleading claims and conspiracy theories that engage and enrage their audiences. Most recently, untrustworthy and “hyper-partisan” websites and Facebook pages have proliferated online (Silverman et al. 2016, Allcott and Gentzkow 2017), taking advantage of the profit opportunities provided by the combination of increased demand (resulting from political polarization), low production costs (content creation without original reporting is inexpensive), and low barriers to entry and distribution on social media (which puts outlets on a more level playing field compared to offline).

The means by which people acquire and consume information also play an important role in misperceptions. Notably, false beliefs are often attributed to the public being trapped in “echo chambers” or “filter bubbles” of politically congenial news and information online. However, the extent to which technology has created homogenous flows of information has been overstated. Behavioral data reveal that most Americans do not have heavily slanted political information diets. For example, Guess (2018) looks at a nationally representative sample of online media use in 2015 and 2016 and finds most people pay relatively little attention to political news and/or have relatively balanced information diets; those who frequently seek out like-minded partisan or ideological websites are a minority. Similarly, Gentzkow and Shapiro (2011) find that segregation by ideology in web browsing data from 2004-2008 was modest and typically far less than people’s offline networks.

However, technology may aid in the propagation of false information even if it does not create ideological or partisan segregation to the extent that critics fear. These fears have found support in studies of social media. In 2008, for instance, rumors that Barack Obama was a Muslim circulated widely online, driving up beliefs in the myth by 4-8 percentage points nationwide (Kim and Kim 2019). Correspondingly, data from 126,000 rumor cascades on Twitter from 2006-2017 shows that claims that were fact-checked and found to be false spread further and faster on Twitter than claims that were found to be true, a result that appears to be attributable to the novelty of false information

(Vosoughi, Roy, and Aral 2018). Low-quality websites that frequently publish false or unsupported information have sought to exploit these vulnerabilities. During the 2016 general election campaign, for instance, these sites were especially successful at using Facebook to promote their work. We observe this finding in behavioral data; the platform was disproportionately likely to appear among the websites that Americans visited immediately prior to visiting an untrustworthy website (Guess, Nyhan, and Reifler 2020). However, these exposures again tend to be heavily concentrated. Grinberg et al. (2019) find that approximately 80% of false news exposures on Twitter before the 2016 election came among 1% of users; outside of this outlier group, they estimate that fake news sources made up only about 1% of the political URLs people saw on Twitter.

## **Reducing Misperceptions**

Many observers believe that journalists and civic groups should do more to counter misperceptions in order to minimize their potentially harmful effects. It is clear that people have weak incentives to hold accurate beliefs and strong directional motivations to endorse beliefs that are consistent with a group identity such as partisanship. Conversely, political elites have strong incentives to promote misinformation and increasingly effective means of transmitting those claims to their followers. The interventions described below seek to address both of these problems.

Are such interventions necessary? One response is to argue that factual evidence ultimately wins out. Porter and Wood (2019) report the results of numerous experiments showing that people generally update their beliefs at least in part when exposed to factual information. At the macro level, Stimson and Wager (2020) point to long-term trends on high-profile issues such as the state of the economy, the link between smoking and cancer, and belief in natural selection to argue that public opinion tends to trend toward the evidence. However, these trends may be slow (the Scopes trial was almost a century ago) and/or incomplete (e.g., on climate change, as described above). Moreover, beliefs on some issues prove to be stubbornly resistant to updating – partisans have increasingly diverged in their evaluations of the economy, for instance, since George W. Bush’s presidency.

How, then, should misperceptions be reduced? Proposals that seek to address the problem vary in both the timing of the intervention (before or after exposure to or dissemination of a claim) and the target of the intervention (the public, political elites, or social media platforms).<sup>2</sup> This typology is summarized in Table 1. I briefly review the evidence for each approach below.

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<sup>2</sup> I am indebted to Andy Guess for this point.

Table 1: Target and timing of interventions to reduce misperceptions

	Individuals	Political elites	Online platforms
In advance	Political information/ media literacy	Reputational incentives	Reduce untrustworthy sources
Afterward	Corrections/ fact-checking	Reputational sanctions	Fact-check labels/ reduce reach

One way to prevent misperceptions, some argue, is for journalists, educators, and other nonpartisan organizations and institutions to provide people with more or better information about the issues in question in advance. However, the evidence supporting this conjecture is mixed.

First, we lack a social consensus on the institutions that would provide such information. The problem is not a lack of capacity. Though failures of course exist, the U.S. and other industrialized countries generally have well-functioning government agencies such as the Bureau of Labor Statistics and the Centers for Disease Control and Prevention that provide accurate information about metrics such as unemployment or health care outcomes. Similarly, though journalism is an inherently subjective enterprise, research suggests that the conclusions of fact-checking sites – the media outlets most closely aligned with this mission – are generally aligned for claims that are rated as clearly true or false, though intercoder agreement deteriorates for claims between those endpoints (Amazeen 2008, Lim 2018). Nonetheless, both government statistics and the media are widely distrusted, especially among Republicans (Frankovic 2017; Guess, Nyhan, and Reifler 2019).

In addition, credible civic and political information may fail to attract public attention, particularly from voters who might need it most. Fewer than half of the Americans who were exposed to news from untrustworthy websites even visited a fact-checking website in the weeks before the 2016 election (Guess, Nyhan, and Reifler 2020). In general, people tend to prefer other kinds of content. Iyengar, Norpoth, and Hahn (2004) tested preferences for news about the 2000 election and found that people tended to prefer coverage of the horse race and political strategy to factual information about issues. The people who prefer factual information instead are not typical. When Mummolo and Peterson (2017) looked at a voter guide produced for the Sacramento Bee newspaper in 2014, for example, they found that it was mostly used by people who are already highly interested in and knowledgeable about politics. It is thus unclear that providing more political information or improving political knowledge will reduce the prevalence of misperceptions.

An alternate approach is to build media literacy, which seeks to help people better identify (un)trustworthy information sources on their own. Experimental studies suggest that even brief exposure to interventions that provide guidelines and recommendations for identifying accurate information can reduce belief in false claims and help people distinguish between false and mainstream news. For example, reading the “tips” for spotting untrustworthy news provided by Facebook and WhatsApp increased participant discernment between mainstream and false news headlines in studies conducted in the U.S. and India (Guess et al. forthcoming). Roozenbeek and van der Linden (2019) also found that the experience of playing a “fake news” game in which users

learned misinformation tactics helped them better identify unreliable headlines and tweets afterward. However, most media literacy interventions have not yet been evaluated in randomized trials. Moreover, even if these efforts prove effective, they may be difficult and/or costly to implement and scale in a manner that creates durable effects, especially outside the education system.

Fact-checks seek to counter misinformation by evaluating the accuracy of claims directly, including after they are made. For example, fact-checkers might seek to debunk false or misleading claims to which people have been exposed after a political debate or presidential address. An early study in this literature found evidence of a “backfire effect” in which people who were exposed to counter-attitudinal corrective information expressed more belief in a misconception (Nyhan and Reifler 2010). However, this finding was anomalous (Nyhan forthcoming). Meta-analyses of the related literatures on corrective information and fact-checking find that they do generally increase the accuracy of people’s beliefs and reduce belief in misperceptions, though these interventions do not fully offset the effect of exposure to misinformation and their effects may be reduced in conflictual political settings (Chan et al. 2017; Walter and Murphy 2018; Walter et al. 2019).

Moreover, post-exposure fact-checks share some of the same problems as efforts to provide accurate information in advance of exposure. As noted above, articles on fact-checking websites are poorly targeted to people who are exposed to the misinformation those articles seek to debunk (Guess, Nyhan, and Reifler 2020). In addition, the effects of fact-check exposure tend to decay over time. These decay effects may be larger when high-profile politicians or issues are involved. In a study of respondents from Amazon Mechanical Turk, for instance, Swire et al. (2017), find that increases in belief accuracy after affirmations of true statements or fact-checks of misinformation declined after a week and that these effects were larger when the claim in question was attributed to Donald Trump. These findings may help to explain why the encouraging results seen in many one-shot fact check experiments do not translate into sustained reductions in belief in high-profile misperceptions even when corrective information is widely disseminated.

In general, interventions targeting the public face difficult issues in targeting the individuals who hold misperceptions, creating durable changes in beliefs, and scaling in a cost-effective manner across the population. It is therefore important to also consider alternate approaches that seek to limit misperceptions by reducing the supply of misinformation and its spread.

One approach is to change the incentives or practices of political elites and publishers. In one field experiment testing the effects of these incentives, a random subset of state legislators from nine states were sent messages before the 2012 election about the political costs of having false claims identified by fact-checkers. Those who were sent the messages were less likely to have the accuracy of their statements questioned publicly, suggesting that the reminder discouraged false claims (Nyhan and Reifler 2015). Facebook has also announced that it would reduce the reach of groups that repeatedly post false claims and content from publishers who try to game Facebook’s algorithms but have limited reach online, which may not only reduce the prevalence of misinformation but discourage publishers from using such tactics (Dreyfuss and Lapowsky 2019).

In addition, online platforms can warn people about false claims and limit their reach when they have been identified by third-party fact-checkers, overcoming the scale and targeting problems that fact-checkers otherwise face. Facebook has made the most extensive efforts in this regard and has seemingly succeeded in reducing the prevalence of false content in the News Feed. Largely as a

result, Guess et al. (2018) estimate that visits to untrustworthy websites by Americans declined from 27% in fall 2016 to 7% in fall 2018. Allcott, Gentzkow, and Yu (2019) also find a differential decline in fake news stories during this period on Facebook relative to Twitter, which employs less aggressive content moderation practices, suggesting the same conclusion.

## **Conclusion**

Unfortunately, many responses to the problem of misinformation threaten to undermine or limit free speech in democratic societies. For example, critics have called on Facebook to ban “false” ads from candidates, which would introduce a centralized constraint on a core form of political speech that is absent in other media like television. Since 2016, countries around the world have gone even further in using fines or even criminal penalties to try to limit misinformation. One example came in Kenya, which enacted legislation making the publication of false information a crime, a step that the Committee to Project Journalists said will criminalize free speech (Malalo and Mohammed 2018).

Calls for such draconian interventions are being fueled by a moral panic over claims that “fake news” has created a supposedly “post-truth” era. These claims falsely suggest a fictitious golden age in which political debate was based on facts and truth. In reality, false information, misperceptions, and conspiracy theories are general features of human society. For instance, belief that John F. Kennedy was killed in a conspiracy were already widespread by the late 1960s and 1970s (Bowman and Rugg 2013). Hofstadter (1964) goes further, showing that a “paranoid style” of conspiratorial thinking recurs in American political culture going back to the country’s founding. Moreover, exposure to the sorts of untrustworthy websites that are often called “fake news” was actually quite limited for most Americans during the 2016 campaign – far less than media accounts suggest (Guess, Nyhan, and Reifler 2020). In general, no systematic evidence exists to demonstrate that the prevalence of misperceptions today (while worrisome) is worse than in the past.

Even exposure to the ill-defined term “fake news” and claims about its prevalence can be harmful. In an experimental study among respondents from Mechanical Turk, Van Duyn and Collier (2019) find that when people are exposed to tweets containing the term “fake news,” they become less able to discern real from fraudulent news stories. Similarly, Clayton et al. (2019) find that participants from Mechanical Turk who are exposed to a general warning about the prevalence of misleading information on social media rate headlines from both legitimate and untrustworthy news sources as less accurate, suggesting that the warning causes an indiscriminate form of skepticism.

Any evidence-based response to the problem of misperceptions must thus begin with an effort to counter misinformation about the problem itself. Only then can we design interventions that are proportional to the severity of the problem and consistent with the values of a democratic society.

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