

RESEARCH NOTE

The making of the boy who cried wolf: fake news and media skepticism

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Abstract

Deceiving citizens is typically considered the main political motive behind the spread of fake news. Accordingly, strategies to debunk fake news, such as fact-checking, have been suggested to combat it. However, the spread of fake news persists despite these debunking strategies. We propose an alternative but underexplored motive behind the spread of fake news: Fake news aims not only to deceive citizens but also to induce media skepticism. To support our claim, we present a stylized formal model of media skepticism and demonstrate that the incentive to spread fake news persists even if citizens are not deceived by disinformation coming from fake news. Our model highlights the dilemma embedded in fact-checking.

Keywords: political communication; fake news; media skepticism

Informed decisions by citizens about an incumbent candidate are at the core of democratic processes. To make informed decisions, credible information about the incumbent is crucial. In this sense, “citizens have a basic right to information in a democracy” (Levitsky and Ziblatt, 2018, 199). However, the spread of fake news has jeopardized this basic right, making it difficult for citizens to make informed decisions. To address this problem, we first need to answer the following question. What is the political motivation behind the spread of fake news?

It has been widely accepted that the main goal of spreading fake news is to introduce a biased judgment (e.g., Guriev and Treisman, 2015; Little, 2017; Tandoc, 2019).¹ Fake news disseminates disinformation, which manipulates citizens to make political decisions that they would not have made with unbiased information. Based on this understanding, scholars have suggested and studied a ‘debunking strategy’ that protects citizens from deception by fake news (Ecker *et al.*, 2011; Cobb *et al.*, 2013; Walter and Murphy, 2018). Fact-checking is considered one of the most widely used and effective debunking strategies (Carnahan and Bergan, 2022). The rationale behind the debunking strategy is straightforward: If citizens are not deceived by disinformation originating from fake news, then citizens’ decisions are not influenced by disinformation.

No doubt, fact-checking and other debunking strategies help to address the problem of fake news. However, the spread of fake news persists despite the massive efforts behind these debunking strategies. Rini (2021) reported that Russian-government-linked Twitter accounts did not try to cover up that their postings about US politics were fake news, even after American intelligence debunked them. Analyzing 2.5 million comments, Metzger *et al.* (2021) demonstrated that disinformation shared on social media is often not believed. So, in this paper, we ask again: Why

¹We exclude non-political goals such as entertainment or profit-seeking from our consideration.

do people spread fake news even though fact-checking helps citizens correct disinformation coming from fake news?

Of course, it may be that imperfect fact-checking and correction give room for deception through fake news (Kuklinski *et al.*, 2000; Nyhan and Reifler, 2010). This explanation implicitly posits that deception is the main goal of spreading fake news. By contrast, we focus on citizens' skepticism of the media as the goal of spreading fake news. This new perspective generates an important theoretical implication: *Even if fact-checking and correction can prevent deception, there still exists an incentive to spread fake news.*

One of the important consequences of the spread of fake news is citizens' increased skepticism of the media (Tsati, 2003; Baron, 2006; Besley and Prat, 2006). Although many commentators and scholars have warned that this skepticism leads to an epistemic crisis (e.g., Oreskes and Conway, 2011; Lynch, 2016; Tufekci, 2017; Pomerantsev, 2019; Rini, 2021), which is utilized by interested parties to advance special interests, relatively little theoretical attention has been paid to media skepticism as the main motivation behind the spread of fake news. Instead, media skepticism has usually been considered undesirable collateral damage of deception – one that even the producers of fake news try to avoid because it destroys the credibility of the disinformation they disseminate (e.g., Gehlbach and Sonin, 2014). By contrast, we argue that fostering media skepticism, or the “flooding the zone with shit” strategy à la Steve Bannon, a former chief strategist of the Trump administration (Illing, 2020), is also what fake news producers intend to achieve. That is, even if fake news fails to deceive citizens, there still is an incentive to spread fake news as long as fake news leads citizens to be skeptical of all news reports.

To make more informed decisions, citizens rely on news reports to learn new information about the incumbent. However, if citizens are aware of the overabundance of fake news, then citizens are skeptical about news reports as a reliable source of new information about the incumbent. Consequently, citizens rely less on the new information about the incumbent learned from news reports when making decisions. In other words, citizens suffer the loss of information due to media skepticism, which leads citizens to make similar decisions they would have made without the new information. This information loss creates incentives for certain political actors to raise the “specter of fake news” to discredit the media (see Hanitzsch *et al.*, 2018; Scheufele and Krause, 2019). That is, those who benefit from citizens' uninformed decisions have the incentive to spread fake news to foster citizens' media skepticism even if citizens are not deceived by the disinformation. To these producers of fake news, it is enough to raise citizens' awareness of fake news, which, in turn, creates citizens' media skepticism even if deception fails.

To demonstrate the above intuition, we present a stylized formal model of media skepticism. Since we focus on media skepticism, we exclude the possibility of *direct* deception by fake news in our model. That is, citizens can ignore disinformation of fake news, albeit without perfect detection of fake news. In other words, fake news cannot deceive citizens but rather creates uncertainty. This assumption enables us to identify an oft-ignored motivation for spreading fake news that is independent of the motivation to deceive citizens – the desire to foster media skepticism. In particular, our formal model is a useful way to theorize media skepticism as a motivation behind the spread of fake news given that it is challenging to control the motivation to deceive in empirical studies (Tandoc *et al.*, 2018).

After presenting our model, we discuss the implications of our model on potential interventions to address the problem of fake news. In particular, we are interested in the potential threat to citizens' decision-making that may result from a widely used debunking strategy, fact-checking. Although fact-checking is effective in preventing citizens from being influenced by disinformation, it can, paradoxically, induce more severe skepticism of the media because fact-checking raises citizens' awareness of the inundation of fake news. This theoretical finding is consistent with recent empirical findings (e.g., Van Duyn and Collier, 2019; Ognyanova *et al.*, 2020; Jones-Jang *et al.*, 2021; Lee and Shin, 2021). We do not reject that fact-checking is a necessary measure to combat fake news. Instead, we point out the dilemma embedded in fact-checking.

1. Model setup

We present a stylized formal model of media skepticism induced by the spread of fake news. In our model, we view news reports as the source of information about the incumbent's characteristics on which a citizen – faced with the decision to retain or vote out the incumbent – relies. To illustrate our point that there is an incentive to spread fake news even if citizens are not directly deceived, we hold the assumption that individuals do not make biased decisions based on disinformation coming from fake news.

Our model is in line with signal-jamming models (e.g., Holmström, 1999; Alesina and Tabellini, 2007; Ashworth *et al.*, 2017) in the sense that spreading (or not spreading) fake news itself does not transmit any messages about the incumbent to the decision-maker.² Also, our model can be seen as an application of the idea that new information helps incumbents who are behind and hurts incumbents who are ahead of the competition (Little, 2016; Ashworth *et al.*, 2018) to the context of spreading fake news.

1.1 The incumbent's characteristic

Let $c \in \mathbb{R}$ and $\bar{c} \in \mathbb{R}$ respectively denote the incumbent's characteristic and its threshold value that is important for the representative decision-maker, denoted by D , to make a decision. For example, in the context of a quality competition between the incumbent and the challenger, c and \bar{c} represent the quality of the incumbent and the challenger respectively, and D re-elects the incumbent only when c is expected to be greater than \bar{c} . Another example is a revolution. In this context, c can be interpreted as the strength of the incumbent government, and D would revolt against the incumbent government only when c is less than \bar{c} . In both examples, the incumbent survives only when c is expected to be greater than \bar{c} . To simplify notation, we can normalize $\bar{c} = 0$, and thus the difference of incumbent and challenger's quality $c - \bar{c}$ is also c .

We assume that there is uncertainty about the incumbent's characteristic c , which is common knowledge to all players. Formally, c follows a normal distribution with mean $\mu \in \mathbb{R}$ and variance $\tau^2 \in \mathbb{R}_{++}$ (i.e., $c \sim \mathcal{N}(\mu, \tau^2)$). As such, we see that the incumbent stays in office when $\mu > 0$ but is replaced when $\mu < 0$ unless D upwardly updates her belief about c .

1.2 Fake news and media environment

Individuals rely on news reports to estimate the incumbent's quality c more precisely. However, news producers have incentives to purposely spread fake news to mislead individuals in their favor. We assume that D can only read a limited amount of news articles, spreading more pieces of fake news reduces the likelihood that D encounters a piece of true news that is informative about the incumbent's characteristic c . Knowing this, a rational individual like D would Bayesian update her perceived quality of the incumbent upon reading news information depending on her perception about the proportion of information she reads being fake news.

Let $0 < f < 1$ denote the proportion of fake news among all news articles she reads in a given media environment, which is externally given and known to D . As it is well documented in the literature of communication research, D could learn about f from sources such as her own reading of the news and personal experience, elite discussion about fake news, and fact-checking (e.g., Bachmann and Valenzuela, 2023; Chang, 2021; Van Duyn and Collier, 2019). Bachmann and Valenzuela (2023), in particular, find that people exposed to political fact-checks trust news less due to being aware of the prevalence of misinformation. Therefore, this probability f can be seen as an indicator of the quality of the media environment in the sense that the quality of the media environment decreases as f increases.

²For the signaling model of fake news or propaganda, see Huang (2015)).

Formally, let $x \in \{x_f, x_t\}$ denote a piece of news about c , where x_f and x_t indicate a piece of fake and true news, respectively. We model x_f as a completely uninformative signal about c ,³ while x_t follows

$$x_t = c + \epsilon, \quad \epsilon \sim \mathcal{N}(0, \sigma^2),$$

where $\epsilon \in \mathbb{R}$ denotes errors which follows the normal distribution $\mathcal{N}(0, \sigma^2)$. By true news, we mean any piece of news that allows D to infer an unbiased estimate of c on average (Alvarez and Franklin, 1994; Holmström, 1999; Edmond and Lu, 2021), which is captured by the zero mean of ϵ . This means that D is assumed to be able to de-bias a biased piece of news as long as it contains any information about c .⁴ The problem, however, is that individuals are not able to perfectly detect fake news. When D receives a piece of news, D knows that it is true with a probability of f , and fake with $1 - f$.

2. Media skepticism

Although D is not directly deceived by fake news, spreading more pieces of fake news leads D to rely less on the media. We call this media skepticism. That is, D ignores the piece of news from the media, which prevents D from learning new information about c . Consequently, media skepticism leads D to make a decision similar to one that D would have made without new information gleaned from news reports.

Based on the above intuition, we formalize the idea of media skepticism as follows. Let $c|x$ denote D 's posterior belief about c after observing x . D does not update her belief if the piece of news is fake (i.e., $x = x_f$), so her posterior belief about c is the same as her prior belief (i.e., $c|x \sim \mathcal{N}(\mu, \tau^2)$). Then, the posterior expectation about c is $\mathbb{E}(c|x) = \mu$. If, on the other hand, the piece of news is true (i.e., $x = x_t$), then she updates her belief to $c|x \sim \mathcal{N}(\frac{\tau^2 x_t + \sigma^2 \mu}{\tau^2 + \sigma^2}, \frac{\tau^2 \sigma^2}{\tau^2 + \sigma^2})$. In this case, the posterior expectation about c is $\mathbb{E}(c|x) = \frac{\tau^2 x_t + \sigma^2 \mu}{\tau^2 + \sigma^2}$. Since x is fake news (i.e., $x = x_f$) with f , while it is true news (i.e., $x = x_t$) with $1 - f$, the posterior expectation about the incumbent's characteristics is

$$\mathbb{E}(c|x) = f\mu + (1 - f)\frac{\tau^2 x_t + \sigma^2 \mu}{\tau^2 + \sigma^2}.$$

Notice that the posterior expectation of the incumbent's characteristic (i.e., $\mathbb{E}(c|x)$) is still a random variable, which follows the following normal distribution

$$\mathbb{E}(c|x) \sim \mathcal{N}\left(\mu, \frac{(1 - f)^2 \tau^4 \sigma^2}{(\tau^2 + \sigma^2)^2}\right).$$

The posterior expectation of D about the incumbent's characteristic is influenced by the quality of the media environment f , which is captured by the fact that $\mathbb{E}(c|x)$ is a random variable with the variance $\frac{(1 - f)^2 \tau^4 \sigma^2}{(\tau^2 + \sigma^2)^2}$. By inverting this variance term, we can measure the degree of D 's media

³This signal can be drawn from an arbitrary distribution that is uncorrelated with c . For example, it can be simply a real number.

⁴Of course, D 's ability to de-bias may not be perfect for various reasons (Eichenberger and Serna, 1996; Minozzi, 2011; Roberts, 2018; Simon, 1957; Stigler, 1961), which is captured by the variance term of σ^2 . However, the zero mean shows that D is not systemically affected by a biased piece of news.

skepticism as a function of f , denoted by $S(f)$, as follows:

$$S(f) = \frac{(\tau^2 + \sigma^2)^2}{(1 - f)^2 \tau^4 \sigma^2}.$$

To see the rationale behind this, first, note that $S(f)$ is increasing in f . So, the greater f is, the stronger D 's media skepticism $S(f)$ is. Next, observe that D 's posterior expectation of the incumbent's characteristic would not deviate much from D 's initial expectation (i.e., μ) when $S(f)$ is large. That is, the piece of news from the media environment does not crucially change D 's expectation about the incumbent's characteristic when D 's media skepticism is strong. By contrast, D 's posterior expectation of the incumbent's characteristic becomes more likely to deviate from D 's initial expectation as $S(f)$ becomes smaller (i.e., as D 's media skepticism becomes weaker). That is, the piece of news from the media environment meaningfully affects D to form a posterior expectation quite different from D 's initial expectation.

Figure 1 graphically demonstrates the above intuition. As D 's media skepticism intensifies (i.e., as $S(f)$ increases), the peak of the distribution of $\mathbb{E}(c|x)$ becomes taller, and the tails become lighter as depicted in Fig. 1. In other words, weak media skepticism of D leads to a mean-preserving spread of D 's posterior expectation about the incumbent's characteristic, while strong media skepticism of D leads to a mean-preserving contraction of it. This implies that D less seriously considers the piece of news (i.e., x) as D becomes more skeptical of the media environment, which results in D 's posterior expectation of the incumbent's characteristic being more densely distributed around the initial expectation (i.e., μ).

In conclusion, we present Proposition 1 as a summary of the effect of spreading fake news on D 's decision-making mediated by its effect on D 's media skepticism.

Proposition 1 fake news and media skepticism *As the quality of the media environment deteriorates (i.e., f increases), D 's media skepticism becomes stronger (i.e., $S(f)$ increases). As a result, it is more likely that D 's posterior expectation of the incumbent characteristic (i.e., $\mathbb{E}(c|x)$) is similar to D 's initial expectation (i.e., μ).*⁵

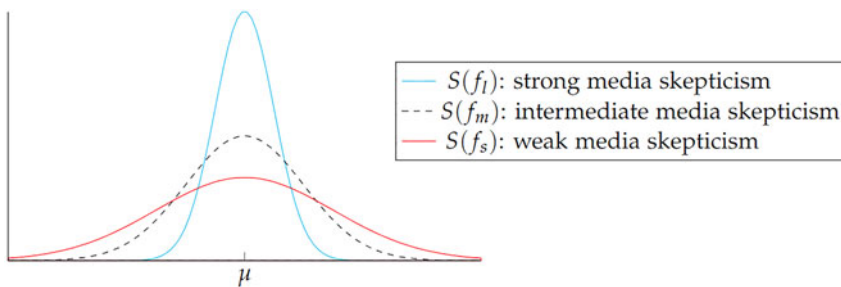


Figure 1. The distributions of D 's posterior expectation of the incumbent's characteristics (i.e., $\mathbb{E}(c|x) \sim \mathcal{N}(\mu, 1/S(f))$) where $0 < f_s < f_m < f_l < 1$ and $S(f_s) < S(f_m) < S(f_l)$.

⁵Although Proposition 1 focuses on how an individual would Bayesian update with a single piece of news, this proposition still holds when D sequentially observes another piece of news. See Online Appendix for details.

3. The incentive to spread fake news

In our model, spreading fake news cannot directly deceive the decision-maker in expectation, which is captured by $\mathbb{E}(c|x) \sim \mathcal{N}\left(\mu, \frac{(1-f)^2 \tau^4 \sigma^2}{(\tau^2 + \sigma^2)^2}\right)$. Nevertheless, is there still an incentive to spread fake news? Our answer to this question is yes because spreading fake news increases the decision-maker’s media skepticism, which, in turn, can impact her/his decisions. Specifically, media skepticism leads the decision-maker’s updated expectation of the incumbent’s characteristics based on news reports to be similar to the decision-maker’s initial expectation. Then, it is rational for those who benefit from maintaining the decision-maker’s initial expectation of the incumbent’s characteristics to spread fake news.

To formally demonstrate the above rationale, we introduce an application of the model analyzed above in which D (the representative voter in this context) determines the winner of a quality competition between an incumbent and a challenger. As mentioned above, D forms her belief after observing the piece of news (i.e., x) and decides whether to retain or replace the incumbent. D retains the incumbent if and only if D ’s expectation of the incumbent’s quality $\mathbb{E}(c|x)$ is greater than 0. Using the fact that $\mathbb{E}(c|x) \sim \mathcal{N}\left(\mu, \frac{(1-f)^2 \tau^4 \sigma^2}{(\tau^2 + \sigma^2)^2}\right)$, we can write the probability that the incumbent wins the competition as the probability that $\mathbb{E}(c|x)$ is greater than 0,

$$Pr[\mathbb{E}(c|x) > 0] = 1 - \Phi\left(\frac{-\mu(\tau^2 + \sigma^2)}{(1-f)\tau^2\sigma}\right),$$

where Φ denotes the CDF of the standard normal distribution.

Knowing this, pro-incumbent news producers have the incentive to maximize the probability that the incumbent wins the competition (i.e., $Pr[\mathbb{E}(c|x) > 0]$), while anti-incumbent producers want to minimize the probability. Notice that the above probability is influenced by the value of f . It is innocuous to assume that spreading more pieces of fake news increases the probability of encountering fake news (i.e., f), which intensifies D ’s media skepticism (i.e., $S(f)$ increases). Then, influencing D ’s media skepticism by adding pieces of fake news to the media environment (i.e., increasing f) enables news producers to pursue their goals. Building on this, we present our second proposition, which has a similar flavor to Little (2016) and Ashworth *et al.* (2018).

Proposition 2 incentive to spread fake news When D ’s initial expectation about the incumbent’s characteristic is greater than 0 (i.e., $\mu > 0$), a pro-incumbent producer has an incentive to spread fake news. When D ’s initial expectation is less than 0 (i.e., $\mu < 0$), an anti-incumbent producer has an incentive to spread fake news.

The rationale behind Proposition 2 is as follows. Spreading more pieces of fake news would increase the probability that the incumbent wins the competition when D ’s initial expectation about the incumbent’s characteristic is greater than 0 (i.e., $\mu > 0$). By contrast, the probability decreases as more fake news is proliferated when D ’s initial expectation is less than 0 (i.e., $\mu < 0$). Figure 2 visualizes the rationale behind this. Each curve in Fig. 2 represents the probability that the incumbent wins the competition with different degrees of media skepticism. We can see that the probability curve in Fig. 2 shifts from the red line to the dashed line to the blue line as D ’s media skepticism becomes stronger.

Consider the case in which D ’s initial expectation about the incumbent’s quality is greater than 0 (i.e., $\mu > 0$), which is captured by setting $a = 0$ in Fig. 2. Then, as D ’s media skepticism becomes stronger, the probability that the incumbent wins the competition (i.e., $Pr[\mathbb{E}(c|x) > a = 0]$) increases from a_1 to a_2 to a_3 in Fig. 2. This is why a pro-incumbent news producer has the incentive to spread fake news (i.e., increase f) to lead D to be more skeptical. Substantively, maintaining

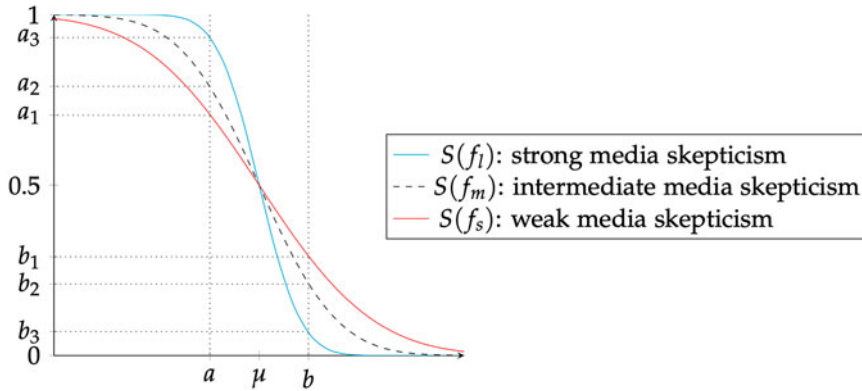


Figure 2. The probability that the incumbent wins the competition (i.e., $Pr[E(c|x) > 0]$), where $0 < f_s < f_m < f_l < 1$, and $S(f_s) < S(f_m) < S(f_l)$. The horizontal axis represents potential locations of 0.

D 's initial expectation would be the best situation for a pro-incumbent producer because, given $\mu > 0$, D would retain the incumbent. If it is not possible, the pro-incumbent producer will still try to keep D 's posterior expectation about the incumbent's quality as close to D 's initial expectation as possible. In other words, the pro-incumbent producer wants to hinder D 's ability to update her/his opinion of the incumbent based on news reports. To do so, it is necessary to minimize the impact of the information extracted from news reports on D 's updating, which can be done by spreading fake news.

Consider the case in which D 's initial expectation of the incumbent's quality is less than 0 (i.e., $\mu < 0$), which is captured in Fig. 2 by setting $b = 0$. As we can see in Fig. 2, the probability that the incumbent wins the competition decreases from b_1 to b_2 to b_3 as D 's media skepticism becomes stronger. Therefore, an anti-incumbent producer now has an incentive to spread fake news to strengthen D 's media skepticism. D 's initial expectation is favorable to the challenger, so the anti-incumbent producer wants to obstruct D 's updating through news reports to keep D 's posterior expectation about the incumbent's quality similar to the initial expectation.

In conclusion, the incentive to spread fake news is persistent because the dissemination of fake news can cause media skepticism. For example, Llewellyn *et al.* (2019) found that the bot/troll network that disseminated fake news about Brexit did not seem to aim to gain any particular outcome. This lack of a particular direction corroborates that inducing media skepticism – and not directly influencing public opinion – is what motivates the spread of fake news.

4. Discussion

The immediate result of our model of media skepticism is that the incentive to spread fake news is persistent even if fake news does not directly deceive people. News producers can manipulate people's decisions by inducing media skepticism. Media skepticism causes an epistemic crisis in media and politics that erodes our ability to make informed decisions, an ability that is at the core of democratic processes. This conclusion generates the following important implications on the debunking strategies, particularly fact-checking, currently employed against fake news.

First, fact-checking is not a panacea that facilitates people's informed decisions in an inundation of fake news. The main idea behind fact-checking is to prevent people from being deceived by fake news. While fact-checking does help people discover untruthful reporting, fact-checking cannot eliminate the fact that the media environment is infested with fake news. Such awareness

makes people more cautious about the media environment, which intensifies media skepticism. As a result, people come to disregard news reports as reliable sources of new information for more informed decisions because of enhanced media skepticism. As a case in point, Steve Bannon, a former chief strategist of the Trump administration, was alleged to “flood the zone with shit” by disseminating an overabundance of fake news to destroy the credibility of the media (Illing, 2020).

Second, fact-checking cannot stop the distribution of fake news. This occurs because certain media outlets, driven by the goal of heightening media skepticism, maintain an incentive to disseminate fake news despite the likelihood of its eventual debunking through fact-checking processes. As Rini (2021) and Pomerantsev (2019) argue, raising people’s awareness of the abundance of fake news through fact-checking may be what spreading fake news intends to achieve. This is because although fact-checking helps people understand whether a news report is truthful, fact-checking paradoxically reinforces the perception of news reports as “the boy who cried wolf” whom people cannot trust. In Pomerantsev (2019) account, this is indeed what motivates anti-democratic governments to flood democracies with conspiracy theories and fake news to sow confusion and erode faith in democratic institutions.

This theoretical conclusion is consistent with recent empirical findings that exposure to discourse about fake news leads to lower levels of trust in media (Van Duyn and Collier, 2019; Ognyanova *et al.*, 2020; Jones-Jang *et al.*, 2021; Lee and Shin, 2021; van der Meer *et al.*, 2023). This may explain the puzzle of why fake news is persistent despite wide fact-checking efforts. For example, Russian hackers did not try to conceal that they purposefully spread fake news but allegedly intended to be caught during the run-up to the 2016 US presidential election (for details, see Rini, 2021). It is worth noting that, as Oreskes and Conway (2011) argue, the instrumental use of spreading doubts is not new to humankind. It has long been a strategy employed to advance special interests.

We are not arguing that fact-checking is useless. It surely saves people from being deceived by disinformation. In effect, fact-checking itself can reduce the cost of information processing because it makes it easier for people to verify the truthfulness of information of fake news. Nevertheless, our point is that fact-checking falls short of warding off media skepticism because it also strengthens people’s awareness that the media environment is infested with fake news as fact-checking debunks more pieces of fake news. The effectiveness of fact-checking in making informed decisions depends on whether the cost-reducing effect of fact-checking outweighs its cost-increasing effect, which is an empirical question. Although challenging, we need to address media skepticism. To do so, we call for attention to the oft-neglected mechanism behind the spread of fake news: the epistemic crisis caused by media skepticism.

Supplementary material. The supplementary material for this article can be found at <https://doi.org/10.1017/psrm.2024.7>.

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