



# Reply to Healy et al.: Value of ex ante predictions and independent tests for assessing false-positive results

In our study (1), we conclude that a published result that college football games influence elections (2) is most likely a false-positive. In a letter to the editor (3), Healy et al., the authors of the original study (2), raise several objections. Healy et al.'s letter (3) suggests that they have partly misread our paper (1) as a criticism of their research design. We grant that their research design and identifying assumptions are sound but worry that their result is a chance false-positive, which can arise even with a perfect research design. We test several additional, independent hypotheses that should hold if college football games do indeed influence elections. We find no support for any of these independent hypotheses, leading us to conclude that the original result is most likely a false-positive.

Healy et al.'s (3) first objection is that we ignore their analysis using betting spreads. To the contrary, we discuss it directly in our paper (1): "Healy et al. . . . show that their results are largely unchanged when they . . . control for game expectations. These tests mitigate concerns about confounding variables, but . . . they say nothing about the possibility of a false-positive result." Controlling for game expectations as measured by betting markets is a nice robustness test that lends additional credibility to their research design. However, granting that their research design was sound to begin with, adding an additional control should not change the results and does not provide

an independent test of their hypothesis. In short, even results that are robust across different controls can still be false-positives.

Healy et al.'s (3) second objection is that we ignore their analysis of college basketball. In their original study, Healy et al. (2) conducted a survey experiment where they informed a randomly selected group of respondents about the outcomes of their preferred basketball team's last two games and then asked all respondents whether they approve of President Obama. Knowing that Healy et al. previously found that college football victories correspond with higher vote shares for incumbent politicians, let's think about what experimental result would have been most consistent with their hypothesis. If irrelevant events and mood truly influence voters' evaluations of incumbents, we would have expected that informing respondents about a victory (loss) would increase (decrease) their approval of the president. Surprisingly, Healy et al. (2) find the opposite and rationalize this surprising result by arguing that respondents in their control condition had already allowed the basketball games to influence their political evaluations, and when reminded of the basketball game, they "decouple their mood change induced by their team's fortunes from the political object of judgment" (2). Because a result in either direction could have, ex post, been interpreted as consistent with their hypothesis, this experiment is

not a compelling test of Healy et al.'s hypothesis.

In an online document (4), Healy et al. discuss our specific empirical tests, and we have posted a detailed response to these critiques online (5). In some cases, we believe Healy et al.'s concerns reflect a misreading of our paper (1), and in other cases, we find Healy et al.'s interpretations of our results strained.

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- 1 Fowler A, Montagnes BP (2015) College football, elections, and false-positive results in observational research. *Proc Natl Acad Sci USA*, 10.1073/pnas.1502615112.
- 2 Healy AJ, Malhotra N, Mo CH (2010) Irrelevant events affect voters' evaluations of government performance. *Proc Natl Acad Sci USA* 107(29):12804–12809.
- 3 Healy A, Malhotra N, Mo CH (2015) Determining false-positives requires considering the totality of evidence. *Proc Natl Acad Sci USA*, 10.1073/pnas.1518074112.
- 4 Healy AJ, Malhotra N, Mo CH (2015) Reply to Fowler and Montagnes (2015): Discussion of auxiliary tests. Available at [dx.doi.org/10.7910/DVN/FKEZH6](https://dx.doi.org/10.7910/DVN/FKEZH6). Accessed October 12, 2015.
- 5 Fowler A, Montagnes BP (2015) Reply to Healy et al.'s discussion of auxiliary tests. Available at [papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2681144](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2681144). Accessed October 19, 2015.

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