

Anti-Intellectualism, Anti-elitism, and Motivated Resistance to Expert Consensus

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Abstract

Public opinion is far apart from experts on a wide range of issues. The dominant explanation of this is ideologically-driven motivated skepticism. However, this is not a sufficient explanation for less salient and politically-charged questions. I argue that more attention needs to be given to anti-intellectualism – the generalized mistrust and suspicion of experts and intellectuals. Using the General Social Survey and a survey of 3,600 Americans on Amazon Mechanical Turk, I show a strong association between anti-intellectualism and opposition to scientific positions on climate change, nuclear power, GMOs, and water fluoridation. An embedded survey experiment also shows that anti-intellectualism moderates the acceptance of messages related to scientific agreement. Finally, the paper explores the existence of a link between anti-intellectualism and populism – a world view that sees political conflict as primarily between ordinary citizens and a privileged societal elite. It shows that populism is strongly associated with anti-intellectualism, and demonstrates experimentally that generalized populist rhetoric – even that which does not pertain to experts directly – can activate anti-intellectual predispositions in the processing of expert messages on unrelated issues. These findings suggest that rising anti-elite rhetoric may make anti-intellectual predispositions more salient for information processing.

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Citizens are often in disagreement with scientific opinion on a wide range of issues that have important implications for policy making. The bulk of scholarly attention to this matter has been dedicated to climate change. At some level this is understandable. Climate change is one of the most pressing issues of our time, and one where we have struggled to find and implement long-term policy solutions. However, a focus on climate change potentially distorts our understanding of how citizens are persuaded by expert advice on other issues. A large majority of citizens in the United States agree with the climate change consensus, but opinion is very heavily structured by ideology and partisanship. Thus, explanations about the failure of citizens to accept expert advice tend to center on ideology-driven motivated reasoning. This is not the case on other issues, like GMOs, nuclear power, or water fluoridation, among others. So, it is likely not the whole story on these science-based issues.

I advance the argument here that one of the central predispositions that govern citizens' acceptance of expert knowledge is anti-intellectualism – the disdain for intellectual and scholarly pursuits, which results in a mistrust of experts and intellectuals. Not a lot of work has explored the nature of this predisposition and how it may shape attitudes towards areas of expert consensus. This paper contributes to this nascent literature in three ways. First, I establish anti-intellectualism as a strong predictor of agreement with positions of expert consensus above and beyond left-right ideology. Second, using a survey experiment, I demonstrate that anti-intellectualism moderates the persuasiveness of messages of expert consensus on a variety of issues. Third, I connect anti-intellectualism to the broader predisposition of populism – a world view that sees political conflict as primarily between ordinary citizens and a privileged societal elite. I further show with my experimental design that anti-elite rhetoric – even rhetoric that does not directly pertain to experts and intellectuals – activates anti-intellectualism as a predisposition and in so doing limits the persuasiveness of consensus messages from experts among those most in need of persuasion.

Anti-intellectualism and the Rejection of Expertise

Scholars, starting with the seminar work of Hoftstader (1962), have shown that anti-intellectualism has a long history in American politics. The roots of this worldview are in a belief that “intellectuals....are pretentious, conceited...and snobbish; and very likely immoral, dangerous,

and subversive” and that “the plain sense of the common man...is an altogether adequate substitute for, if not actually much superior to, formal knowledge and expertise” (Hofstadter, 1962, p.19). Experts are seen as dangerous because they occupy the halls of power and profess to know how citizens should better run their lives. The rising importance of the expert with the growth of government after the Second World War may have helped spark a rise in anti-intellectualism (Hofstadter, 1962).

Not all scholars agree on how to conceive of anti-intellectualism. Rigney (1991) identifies three distinct components to anti-intellectualism: 1) Anti-rationalism, or the dismissal of critical thinking as a desirable trait; 2) Unreflexive instrumentalism, or the devaluing of long term payoffs for short term material gain; and 3) anti-elitism, or the disparagement of intellectuals and experts. Some have viewed anti-intellectualism as a rhetorical style that emphasizes plain-spokenness (Lim, 2010; Shogun, 2007), while others see it as an important component of populist rhetoric (Brewer, 2016; Harris, 2010; Kazin, 1995).

For my purposes here, anti-intellectualism is defined as *a generalized suspicion and mistrust of intellectuals and experts of whatever kind resulting from a disdain for scholarly and intellectual pursuits*. Such disdain can have a number of sources. Some citizens might perceive expert authority as fundamentally at odds with religious authority that they may privilege. Or, they might not see the value of education and critical thought, particularly if they see it as coming at the expense of practical knowledge and common sense (Rigney, 1991). Some citizens may be resistant to new technologies and human progress and thus harbour resentment towards those that that make it possible, echoing the luddites of the distant past. Or, they may be skeptical of acquired knowledge because they see it as a tool of an exploitative societal elite (Brewer, 2016) – a point which will be returned to below. Whatever the source, the result is a generalized mistrust of expert authority.

Anti-intellectualism has important implications for the acceptance of expert consensus. Perceptions of speaker knowledge are important for messages to be persuasive to the lay citizen, but they are not sufficient. Citizens peripherally pay attention to politics and assimilate knowledge with the aim of minimizing costly mistakes. This requires citizens to *trust* speakers, which is dependent on either perceived common interests or a perception that lying is costly to the speaker (Lupia & McCubbins, 1998). By definition, those that hold anti-intellectual predispositions lack this trust in expert sources. Thus, we should expect them to exhibit lower agreement with

important positions of scientific agreement. Motta (2017) found this to be the case for climate change and the safety of nuclear power, but it should also apply on issues of lesser salience. We should also expect the persuasiveness of messages emphasizing scientific agreement to be lower among these citizens. This leads to the first two hypotheses pursued in this paper.

Hypothesis 1 (H1): Anti-intellectualism is correlated with opposition to positions of expert agreement holding other factors, like ideology and partisanship, constant.

Hypothesis 2 (H2): Anti-intellectualism conditions the effect of expert agreement cues on support for positions of expert agreement with effects weaker effects expected among those with anti-intellectual predispositions.

Anti-elite Rhetoric as an Activator of Motivated Resistance

Perhaps the larger contribution for this paper is in exploring possible influences in the real world that might make this highly conditional acceptance of expert consensus more apparent. One possibility is anti-elite rhetoric. The study of populism has been extensive, but there has been tremendous disagreement on how to define it. Scholars have searched for the common denominator to link together international movements that have little in common at the surface. A useful starting point is provided by Kazin (1995), who argues that populism is a worldview that pits average citizens against elites in political and economic conflict. His emphasis is on underlying attitudes and is pitched in the American context, but this definition has broader use. For example, Roodujn (2014) finds that a common thread linking populist movements globally is a belief that politics is in part defined by a struggle between the people, imagined as a collective, and powerful societal elites. His emphasis, in contrast to Kazin, is in populism as a rhetorical strategy. Following these scholars, and others (Mudde, 2004; Taggart, 2000) this paper treats populism as *both* a worldview and a rhetorical strategy employed by politicians that emphasizes conflict between the people, imagined as a collective, and political elites or the establishment.

In short, populism is minimally defined by its *anti-elitism* – a hostility towards elites, of whatever kind and for whatever reason. The roots of this anti-elitism can vary. On the political

left, hostility towards elites is anchored in concerns about the wealth and privilege of economic elites and their effects on marginalized communities. On the political right, this suspicion may be rooted more in concern about excessive government power over those of individuals. In either case, ire is directed towards societal elites for reasons that are not linked to the level of intellect or education of those elites.

Anti-elitism is perhaps the only thing that links together recognized populist movements in America (Brewer, 2016). Anti-elitism can be found in Anti-federalist opposition to the Constitution (Cornell, 1999), the movement to elect Andrew Jackson (Harris, 2010; Hofstadter, 1962), the agrarian populists of the 19th century (Kazin, 1995), and the popularity of Ross Perot in the 1990s. There is evidence that populist rhetoric has been pervasive in presidential campaign discourse. Such rhetoric allows outsider candidates to distinguish themselves from others closer to the power centres in each party (Bonikowski & Gidron, 2016). More recently, anti-elite sentiment has emerged in the aftermath of the Financial Crisis, manifesting in the rise of the Tea Party and Donald Trump on the right (Motta 2017; Skocpol & Williamson, 2013), the growing clout of liberal populists in the Democratic Party (Oliver & Rahn, 2016).

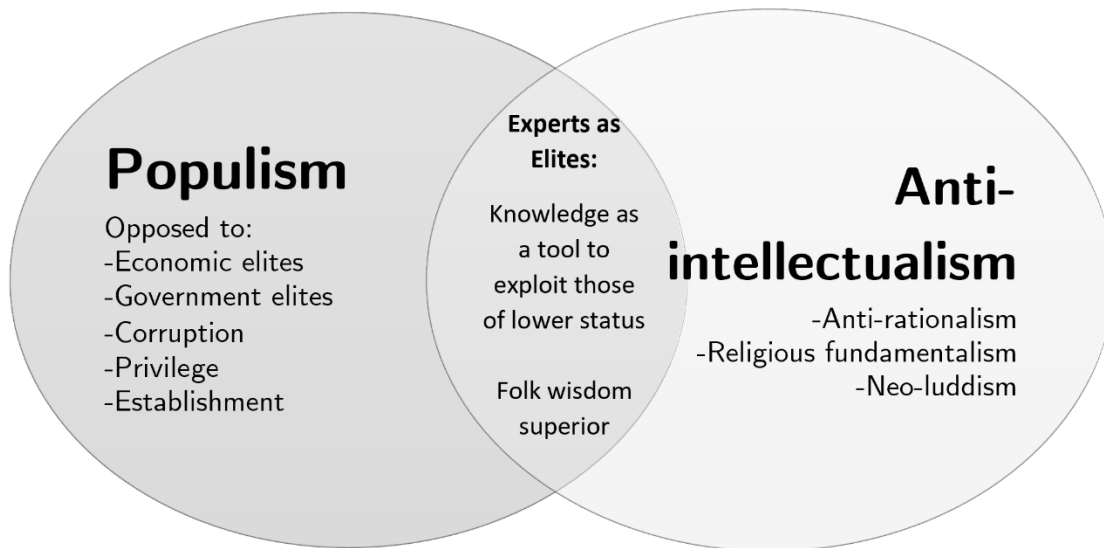


Figure 1. Conceptual relationship between populism and anti-intellectualism

There is likely to be a strong connection between anti-elitism and anti-intellectualism. Suspicion of experts can be rooted in a perception that expert knowledge will be used to control ordinary citizens, which shades into populist discourse. As Brewer notes “American populism tends to be highly resentful of being told by experts ‘we know best’” (2017, p. 253). Some populists may see experts as part of the ruling elite because of their status and importance in policy debates.

However, it would be a mistake to see these concepts as indistinguishable. There are other sources of anti-intellectualism that are distinct from populist concerns about knowledge asymmetries between experts and ordinary citizens, such as religious fundamentalism and anti-rationalism. Similarly, some populists fail to identify experts as part of the ruling elite. For example, populist progressives in the early 20th century saw expertise and professionalism as a solution to the machine politics they abhorred. Marxist leaders often makes considerable use of anti-elite rhetoric, but their movement has historically often been led by intellectuals and fueled by important philosophical texts. Anti-elitism and anti-intellectualism are complex, layered concepts. We can imagine the relationship between them looks something like the Venn diagram in Figure 1.

Notwithstanding these complexities, we have strong grounds to expect an association between them, which leads to my third hypothesis:

Hypothesis 3 (H3): Anti-intellectualism is correlated with populist sentiment after holding other factors, like ideology and partisanship, constant.

A possible association between populism and anti-intellectualism suggests that anti-elite rhetoric may have important implications for the public’s support for areas of expert agreement. Rhetoric has the power to shape political attitudes (Chaiken, 1980; Petty & Cacioppo, 1986), particularly through the use of *frames* in political communication, where political actors use rhetoric and argument in order to emphasize certain considerations of an issue to the exclusion of others (Chong & Druckman, 2007).

Initial studies of framing effects in political science looked at the effect of evoking entirely different considerations of an issue on policy attitudes. However, frames can also link people’s underlying world views to political and scientific questions. Particular focus has been placed on

the influence of moral rhetoric. Research has found that such language can activate citizens' moral intuitions to shape policy evaluations (Barker, 2005; Clifford et al., 2015; Shen & Edwards, 2005). The power of moral rhetoric is facilitated by the fact that moral intuitions are automatic and often unconscious predispositions that might be triggered by the political environment (Haidt, 2001). It is not surprising then that a wide range of literature has found moral framing to be influential in shaping attitudes (Haider-Markel & Joslyn, 2001; Kidwell, et al., 2013; Winterich, et al., 2012). For example, if framing of environmental issues focuses on the sanctity foundation – according to Haidt's moral foundations theory (2001) – conservatives become more likely to endorse environmental protection (Feinberg & Willer, 2013). Similarly, rhetoric on stem cell research that tapped into the care foundation was found to be persuasive among those predisposed to privilege that foundation (Clifford et al., 2015).

The fact that rhetoric from political elites can activate the underlying predispositions of citizens to shape downstream political behaviour does not have to be limited to those of the moral variety. Ideological and value-based predispositions result in citizens often having a wide range of positive and negative affective attachments to political objects that unconsciously shape their processing of political information (Lodge & Taber, 2014). Rhetoric that taps into salient underlying predispositions – broadly speaking – has the capacity to shape political behaviour. A strong association between populism and anti-intellectualism would suggest that for many people experts are seen as elites. If this is true, we might expect anti-intellectualism to moderate the effect of expert agreement cues even more strongly when respondents are exposed to anti-elite rhetoric – even when that rhetoric does not directly pertain to experts and related issues.

Hypothesis 4 (H4): Anti-intellectualism will condition the effect of expert agreement cues more strongly when respondents are exposed to anti-elite rhetoric.

Data and Methods for Observational Analyses

I use the General Social Survey (GSS) and a 2018 survey of 3,614 American citizens who participated through Amazon Mechanical Turk (MTurk) to test the hypotheses I have outlined. This latter sample cannot make claims to representativeness, but some of its broad characteristics are similar to the public as a whole. Table 1 provides a comparison of the 2016 GSS and the

MTurk sample used in the paper. MTurk respondents are reasonably representative of the American population in terms of gender, race, partisanship, and ideology, but it is substantially younger, more educated, less religious, and more affluent.

	GSS (2016)	MTurk (2018)
Male	44%	42%
White	73%	75%
College Degree or Higher	30%	56%
Conservative	34%	32%
Republican (Lean Included)	35%	36%
Monthly Church Attendance or Greater	44%	30%
Employed Full-Time	46%	60%
Under \$20,000 Family Income	19%	12%
Age (Mean)	49	39

Table 1. Comparison of 2016 GSS survey and 2018 Amazon Mechanical Turk sample

Measuring Anti-intellectualism

Very little work has tried to understand and measure anti-intellectualism as a predisposition in the general public. The GSS, for its part, is limited to a question that asked respondents their degree of confidence in the scientific community (a great deal/only some/hardly any). I use this question for the GSS analyses, rescaled from 0 to 1 where 1 is having hardly any confidence in the scientific community. This is obviously insufficient on its own. Confidence is not the same concept as trust, while the scientific community only represents one set of actors in a broader constellation of experts and intellectuals in society.

One recent attempt by Oliver and Rahn (2016) measured anti-intellectualism with responses to the following questions (strongly agree to strongly disagree, 7-point):

- I'd rather put my trust in the wisdom of ordinary people than the opinion of experts and intellectuals.
- When it comes to really important questions, scientific facts don't help that much.
- Ordinary people can really use the help of experts to understand complicated things like science and health. (reverse coded)

They find that these questions correlate strongly with conservative ideology and religious fundamentalism. But, the questions themselves seem to tap strongly into populist themes, while emphasizing attitudes toward science rather than expertise more broadly. Anti-intellectualism is certainly related to these issues, but, as discussed in section 2, it is likely a multidimensional concept that is not fully captured by these questions.

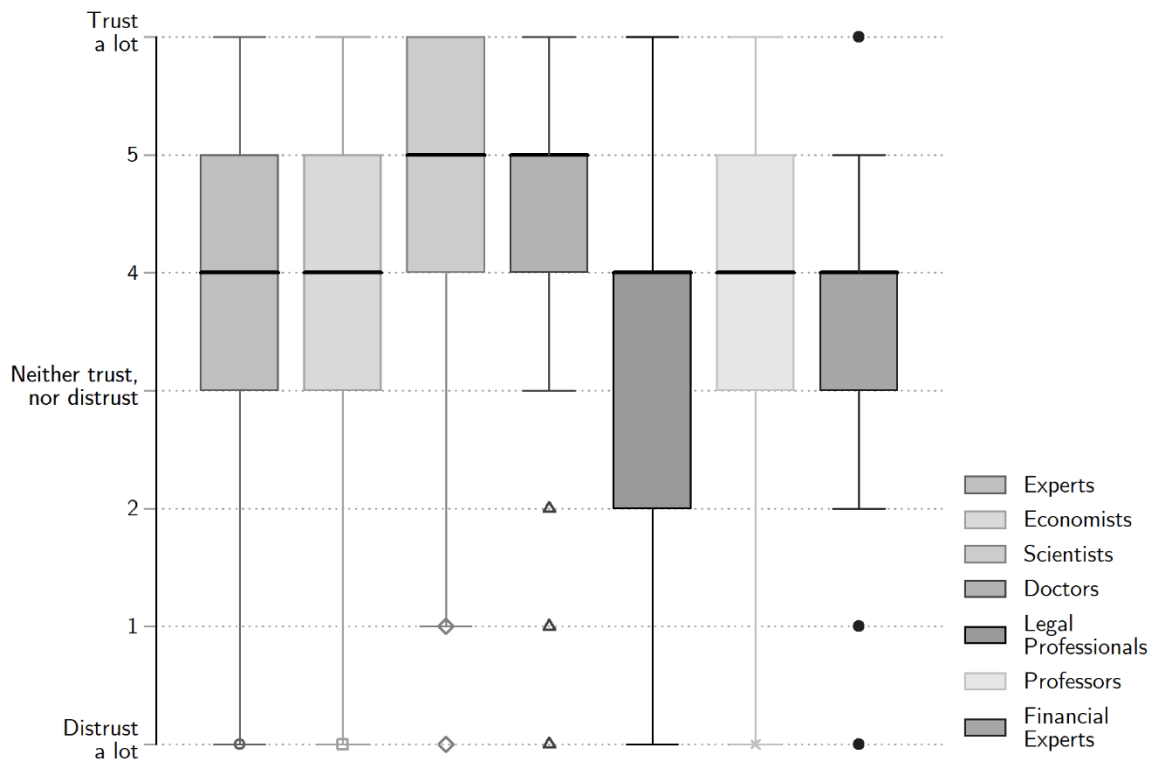


Figure 2. Distribution of trust in expert communities, box and whisker plots

Absent rich, theoretical work that teases out the dimensions of anti-intellectualism for measurement purposes, I lean on the conceptualization I advance here. Whatever the particular source of anti-intellectualism – religious fundamentalism, populism, or anti-rationalism – such citizens will have a *generalized* mistrust of experts. So, I gave respondents a randomized battery where they rated their trust in a number of different groups in society with the following lead (distrust a lot to trust a lot, 7-point):

Below is a list of groups in society. Please tell us the degree to which you trust or distrust members of these groups.

Among these groups are experts, scientists, economists, university professors, doctors and medical professionals, legal professionals, and financial experts. The distributions of these variables are displayed below in Figure 2 as box and whisker plots. As is clear from the graph, Americans are generally trusting of experts across the board, but scientists and doctors have an edge over most groups with a median of 5 on the 0 to 6 scale, while legal professionals are trusted the least with a median of 4. Legal professionals aside, only one quarter of respondents or less are distrusting – at any level – of any given expert community.

Notwithstanding these modest differences, principal components analysis reveals that these items load together strongly on one dimension. These factor loadings are displayed in Table 2. On balance, respondents did not appear to make fine grained distinctions between types of experts. If you trust one class of expert, you are very likely to trust the rest. As a result, these items can be used to construct an index of expert mistrust, which I take as measuring the concept of anti-intellectualism. The Cronbach’s Alpha on such an index is 0.86, suggesting high reliability. Item drop scores show us that the reliability of the index cannot be improved by removing any items. These are shown in Table 2 as well.

Anti-intellectualism		Factor loading	Item-drop	
Experts		0.80	0.83	
Economists		0.73	0.84	
Scientists		0.77	0.83	
Doctors		0.74	0.84	
Legal professionals		0.68	0.84	
University professors		0.74	0.84	
Financial experts		0.69	0.84	
Cronbach's Alpha			0.86	
Institutional Confidence	Factor loading (GSS)	Item-drop (GSS)	Factor loading (MTurk)	Item-drop (MTurk)
Congress	0.73	0.60	0.80	0.79
Federal executive	0.69	0.62	0.80	0.80
Supreme Court	0.67	0.63	0.73	0.82
Major companies	0.61	0.65	0.78	0.80
Banks & finance	0.62	0.65	0.79	0.80
Cronbach's Alpha		0.68	0.83	

Table 2. Factor loadings and reliability scores for anti-intellectualism and institutional confidence.

Consequently, I construct an index of all of these groups, rescaled from 0 to 1 where 1 is the most anti-intellectual, as indicated by a consistent and complete mistrust of expert communities. The distribution of this measure is displayed in Figure 3. Anti-intellectualism as measured here is not all that common among respondents. The average score is approximately 0.34 on the 0 to 1 index. Further, approximately two thirds of Americans find themselves between 0.17 and 0.51, indicating a reasonably narrow distribution. Only about 20% of respondents find themselves at the mid-point of the scale or higher.

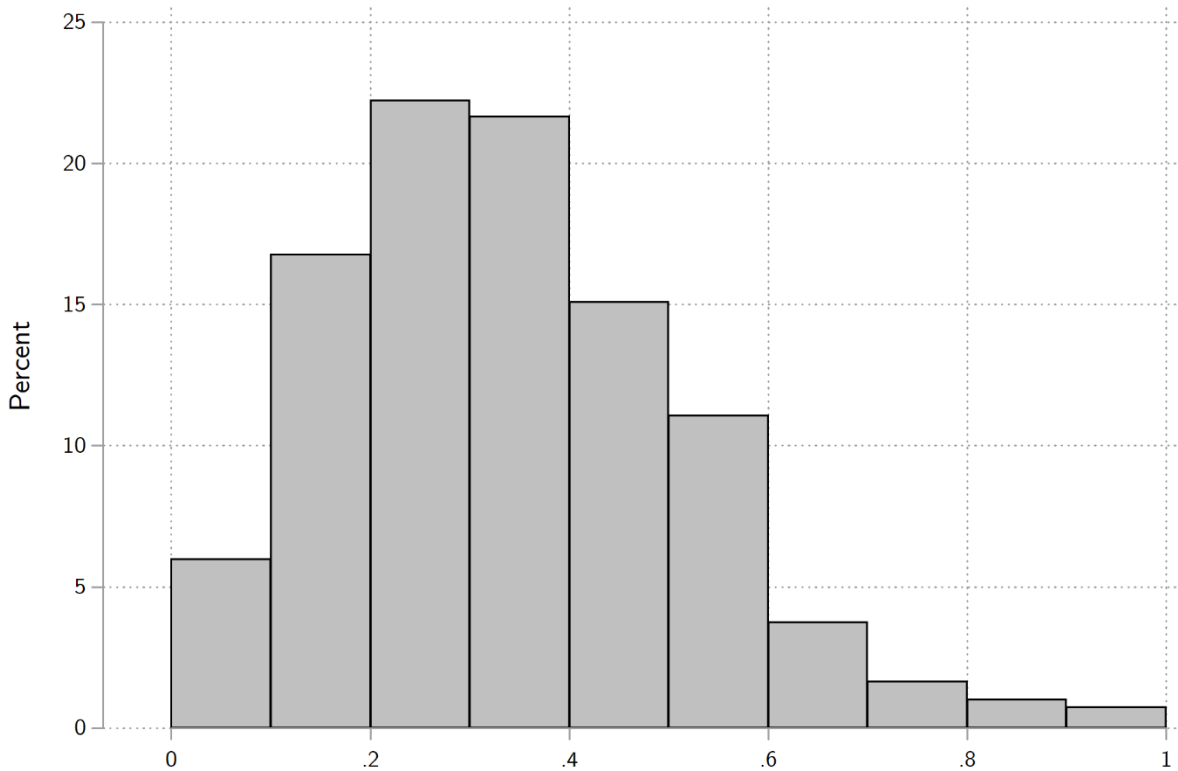


Figure 3. Distribution of anti-intellectualism. Note: measured on a scale of 0-to-1; the average is 0.34, with a standard deviation of 0.17.

Predicting Support for Positions of Expert Consensus

The GSS lacks consistent over time questions on areas of expert consensus. The closest questions that can be found are the following that addressed climate change, nuclear power, and GMOs, respectively:

- Using coal or gas contributes to the greenhouse effect (definitely true to definitely not true, 4-point; asked in 1993, 1994, and 2000)
- How dangerous is nuclear power for the environment? (extremely dangerous to not dangerous at all, 5-point; asked in 1993, 1994, and 2010)
- How dangerous is modifying genes in crops for the environment? (extremely dangerous to not dangerous at all, 5-point; asked in 2000 and 2010)

72% of Americans believed coal and gas definitely or probably contributed to the greenhouse effect. 83% of Americans viewed nuclear power as somewhat to extremely dangerous for the environment, while 72% thought the same for GMOs.

These questions do not fully or appropriately reflect the expert consensus on these issues and were asked long ago. So, I had my MTurk respondents report their level of agreement with four positions of expert consensus on climate change, nuclear power, GMOs, and water fluoridation.¹ 80% of MTurk respondents agreed at some level with the expert position on climate change, versus 48% on nuclear power, 46% on GMO safety, and 53% on water fluoridation. I rescale these measures from 0 to 1 where 1 indicates full support for the expert position. I estimate the following model using OLS regression to examine the link between anti-intellectualism and support for each of our expert positions where X represents a vector of additional control variables.

$$\text{support for expert position} = \alpha + \beta_1 \text{anti-intellectualism} + \beta_2 \text{ideology} + \mathbf{X} + \epsilon \quad (3.1)$$

Ideology is measured as a 7-point scale (Extremely liberal-to-Extremely conservative). I also control for partisanship, which is measured in a similar fashion (Strong Democrat-to-Strong Republican). Both of these variables are rescaled from 0 to 1. Controls for education and political interest are also worth noting. They are used here to soak up information

¹ 1) Earth's climate is warming and this is due to the human production of greenhouse gases like carbon dioxide; 2) Nuclear power is a safe and environmentally-friendly form of energy production compared to conventional sources of energy like fossil fuels; 3) Genetically modified foods are safe, and pose no greater risk to human health than non-GM foods; 4) Water fluoridation improves oral and dental health with no safety risk (strongly agree to strongly disagree, 7-point).

effects. It is possible that anti-intellectuals are simply not as informed about positions of expert consensus, and it is this lack of information that is doing the heavy lifting as opposed to the motivated rejection of expert messages. Descriptions of all the control variables can be found in Table A1 of the Appendix. β_1 should be negative and significant to support H1.

The Association between Populism and Anti-intellectualism

The primary independent variable of interest for H3 is populism. This is measured two ways. I operationalize it as the first factor that emerges from a principal components analysis of questions in the GSS that gauge respondents' confidence in political and economic institutions, such as Congress, the federal executive, the U.S. Supreme Court, major companies, and banks and financial institutions (a great deal/only some/hardly any). Institutional confidence is standing in here as a rough proxy for populism in the absence of better measures that were asked consistently over time. A similar confidence measure is constructed with MTurk respondents. In both cases each of these items load on the same factor, as shown in Table 3.2. Respondents largely do not make a distinction between political and economic institutions.

Second, I built a populist sentiment index with MTurk respondents that is based on the predicted first factor of a principal components analysis on the level of respondent agreement with five statements that tap into such sentiment taken from Oliver and Rahn (2016).² Respondent lack of confidence in institutions and populist sentiment are correlated in the MTurk sample (0.32). All measures are re-scaled from 0 to 1 where higher values represent more populist sentiment. I estimate the following model to predict anti-intellectualism in both the 2016 GSS and the MTurk sample. β_1 should be significant to provide support for H3:

$$\text{anti-intellectualism} = \alpha + \beta_1 \text{populism} + \beta_2 \text{ideology} + X + \epsilon \quad (3.2)$$

² 1) People like me don't have much say in what government does; 2) Politics usually boils down to a struggle between the people and the powerful; 3) The system is stacked against people like me; 4) It doesn't really matter who you vote for because the rich control both political parties; 5) People at the top usually get there from some unfair advantage. (7-point, Strongly agree-to-Strongly disagree)

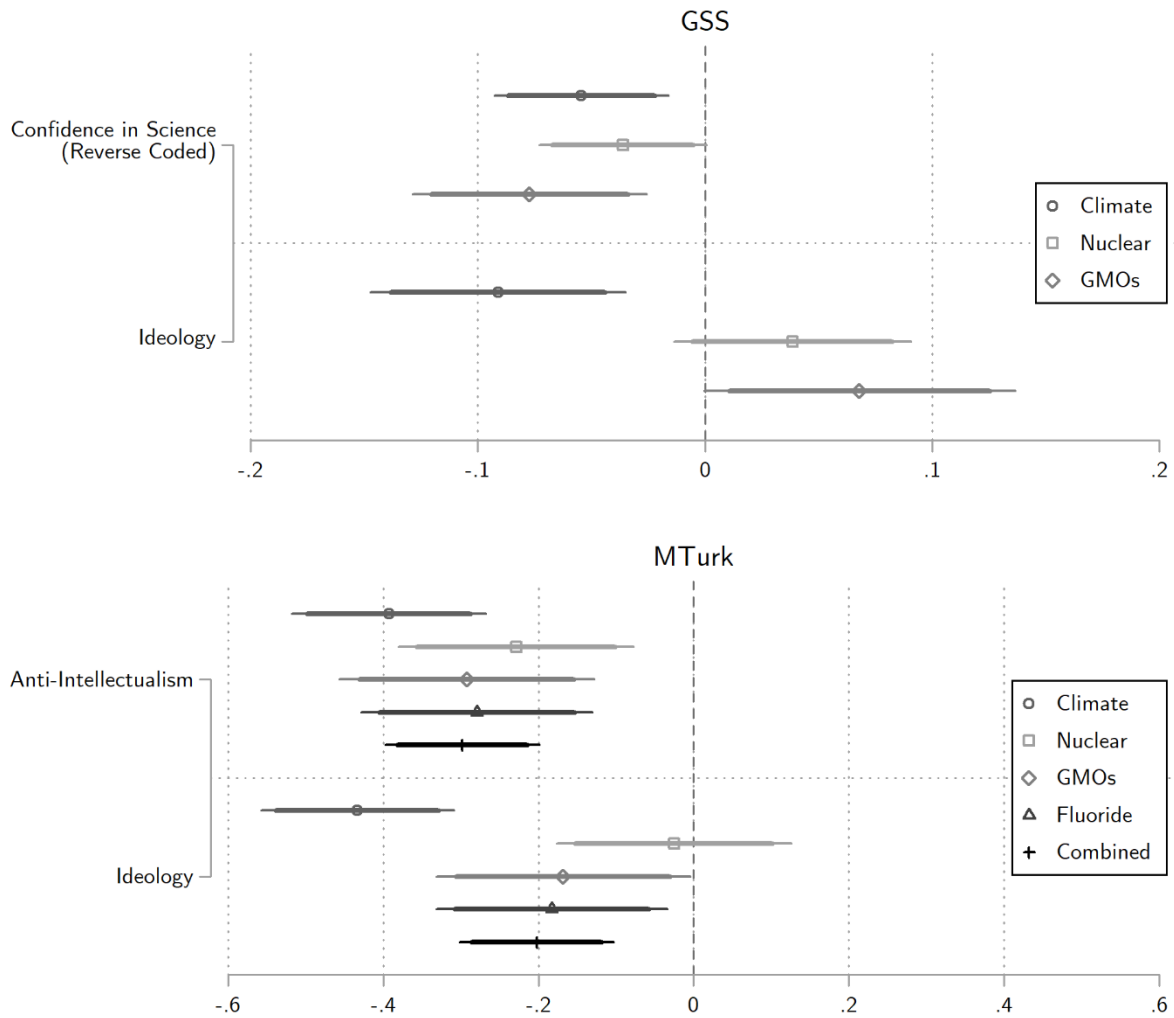


Figure 4. Determinants of support for expert consensus in GSS (top) and MTurk sample (bottom). Note: controls for gender, employment status, race, age, income, education, church attendance, partisanship, generalized trust, and political interest (MTurk only). 95 and 90% confidence intervals.

Observational Results

The results for the observational analyses testing H1 are displayed in Figure 4. The top panel plots the coefficients for anti-intellectualism (operationalized as confidence in the scientific community) and ideology. The full estimation results can be found in Tables A2 and A3 in the Appendix. The results display a remarkably consistent link between anti-intellectualism and support for positions of expert agreement. Moving from having a great deal of confidence in the scientific community to having no confidence is associated with a 0.05 drop in support for the

scientific consensus on the greenhouse effect ($p \sim 0.005$), and a 0.04 ($p \sim 0.05$) and 0.08 reduction ($p \sim 0.003$) in the perceived safety of nuclear power and GMOs, respectively, on 0-1 scales. Ideology, in contrast, has inconsistent effects. Conservative ideology is negatively associated with support for the scientific consensus on the greenhouse effect ($p \sim 0.001$), while it is positively associated with the expert positions on nuclear power ($p \sim 0.15$) and GMOs ($p \sim 0.05$), although not always significantly. Anti-intellectualism is a more consistent predictor of resistance to expert consensus than ideology.

Even stronger findings emerge from the MTurk sample. The coefficients are displayed in the bottom panel of Figure 4. The full results can be found in Table A3 of the Appendix. The consistency in the strength of the association between anti-intellectualism and each area of scientific consensus is striking. Moving across the anti-intellectualism index is associated with a reduction of 0.39 points in support for the scientific consensus for climate change ($p \sim 0.003$), 0.23 points for nuclear power ($p < 0.001$), 0.29 points for GMOs ($p < 0.001$), and 0.28 points for water fluoridation on 0-1 scales ($p < 0.001$). These are sizable effects. When averaging across all issues, movement across the range of the anti-intellectualism index is associated with a reduction in support for positions of expert consensus of 0.30 points ($p < 0.001$).

Conservative ideology is associated with opposition to the climate consensus ($p < 0.001$), GMOs ($p \sim 0.04$), and fluoride ($p \sim 0.02$). Averaging across all issues, moving from extreme liberals to extreme conservatives is associated with a reduction in support for areas of expert consensus of a more modest 0.20 points ($p < 0.001$). Taken together, there is strong support in our observational analyses for H1. Anti-intellectualism is a strong predictor of support for expert consensus above and beyond the effects of left-right ideology.³

Are Populism and Anti-intellectualism Connected?

It is clear that anti-intellectualism is an important predictor of opposition to expert positions. Could generalized anti-elite rhetoric magnify this effect by activating anti-

³ There is some additional evidence that this association is the result of the rejection of expert messages. Information effects, as operationalized by political interest, appear to decline as anti-intellectualism rises. More detail can be found in the Appendix (Table A4, Figure A1).

intellectualism as a predisposition? Before proceeding to the experimental results, it would be helpful to establish an observational connection between populism and anti-intellectualism. The results are plotted in Figure 5. Full estimation results are shown in Table A5 of the Appendix. The top panel contains the results using the 2016 GSS. Moving the full range of populism (operationalized as a lack of confidence in political and economic institutions) is associated with a large reduction in confidence in the scientific community of 0.36 points on a 0-1 scale ($p < 0.001$).

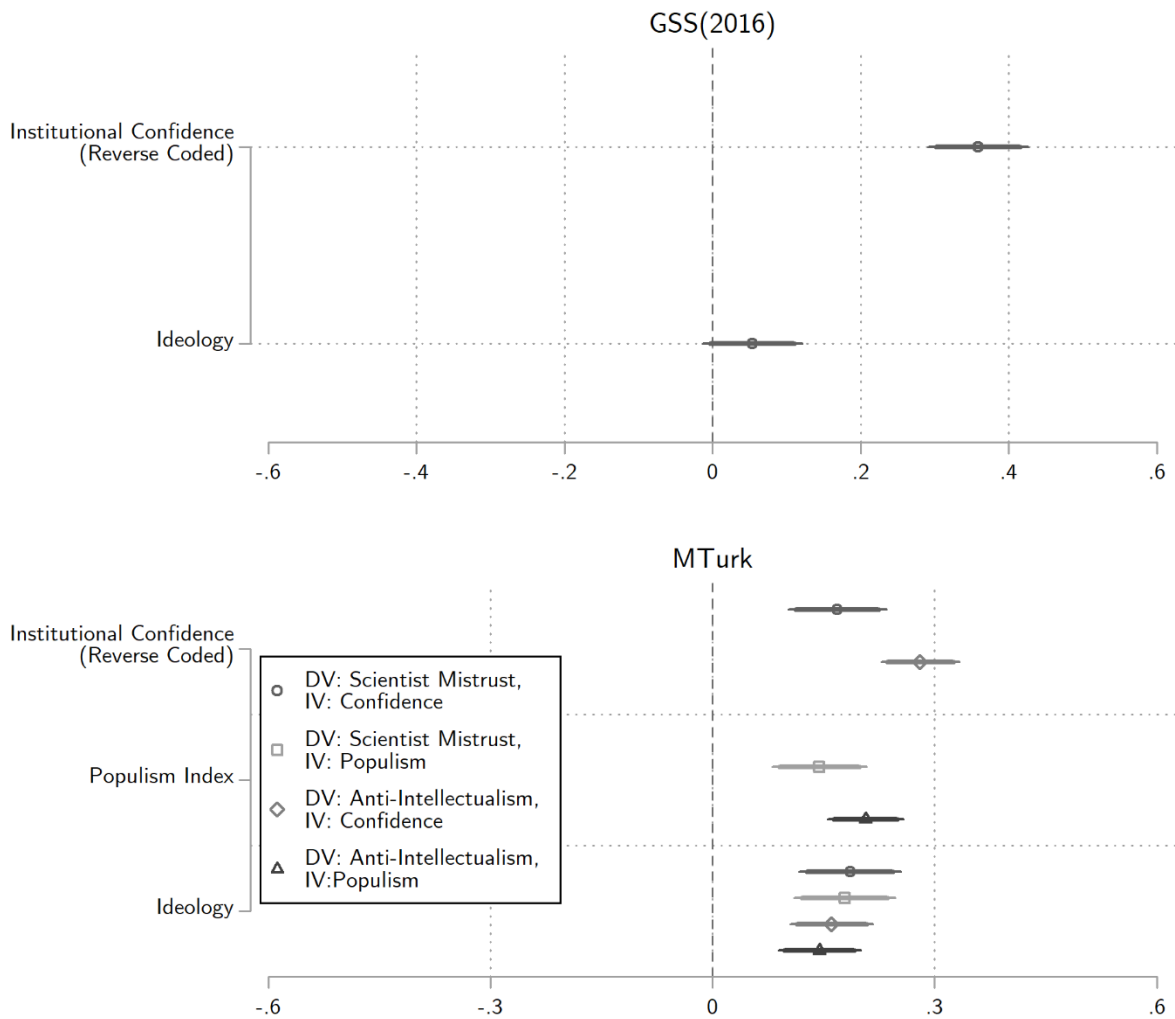


Figure 5. Association between anti-intellectualism and populism with the 2016 GSS (top) and MTurk sample (bottom). Note: controls for gender, employment status, race, age, income, education, church attendance, partisanship, generalized trust, and political interest (MTurk only). 95 and 90% confidence intervals.

The operationalization of both anti-intellectualism and populism is unsatisfactory in the GSS, so I turn to the MTurk sample, the results of which are plotted in the bottom panel of Figure 5. This panel displays the coefficients from a series of models that utilize each combination of my variables of interest. For example, the first model, represented by the circle, operationalizes the dependent variable as mistrust in scientists (DV: Scientist Mistrust), while populism is represented by the institutional confidence index (IV: Confidence). The second model, signified by the diamond, uses the populism index (IV: Populism) in lieu of the confidence in institutions measure, while keeping the dependent variable the same.

For the first model, moving the full range of institutional (lack of) confidence is associated with a large increase in scientist mistrust of 0.17 points ($p < 0.001$) after controlling for other factors. Similarly, for model 2, moving the full range of the populism index is associated with an increase in scientist mistrust of 0.14 points ($p < 0.001$). This result holds when using our more complete index of anti-intellectualism in models 3 and 4. Moving the full range of institutional (lack of) confidence is associated with an increase in anti-intellectualism of a sizable 0.28 points ($p < 0.001$), while moving the full range of the populism index is linked to a large increase of 0.21 points ($p < 0.001$). Regardless of specification, there is a strong, robust association between anti-intellectualism and populism in support of H3. The strength of this association rivals and even exceeds that of ideology and anti-intellectualism.

Experimental Design

There appears to be an observational connection between anti-intellectualism and both populism and support for areas of expert consensus. An experiment can more convincingly establish a causal link between these three factors. I embedded a 2X3 factorial design in the MTurk survey for the purposes of testing H2 and H4.

First, I randomly assigned subjects into three groups. The first treatment group was asked to read a mock news article from *Reuters* describing a political rally during which Senator Angus King (I-ME) used anti-elite rhetoric. The mock article was based coverage of a real rally held by, at the time, Republican presidential nominee Donald Trump. The language was altered so that it could plausibly come from either a Democrat or a Republican politician. Importantly, none of this

rhetoric taps into anti-intellectual themes or the scientific issues used in this paper. The discussion is centred on corruption on Wall Street and in Washington. This test allows us to test whether generalized anti-elite rhetoric activates anti-intellectualism. I used Senator King because of his status as an independent and as a senator from a small state. This would allow for an examination of the effect of the rhetoric independent of partisanship. This article is shown in Figure 6. The other articles can be found in Figures A2-A4 in the Appendix.

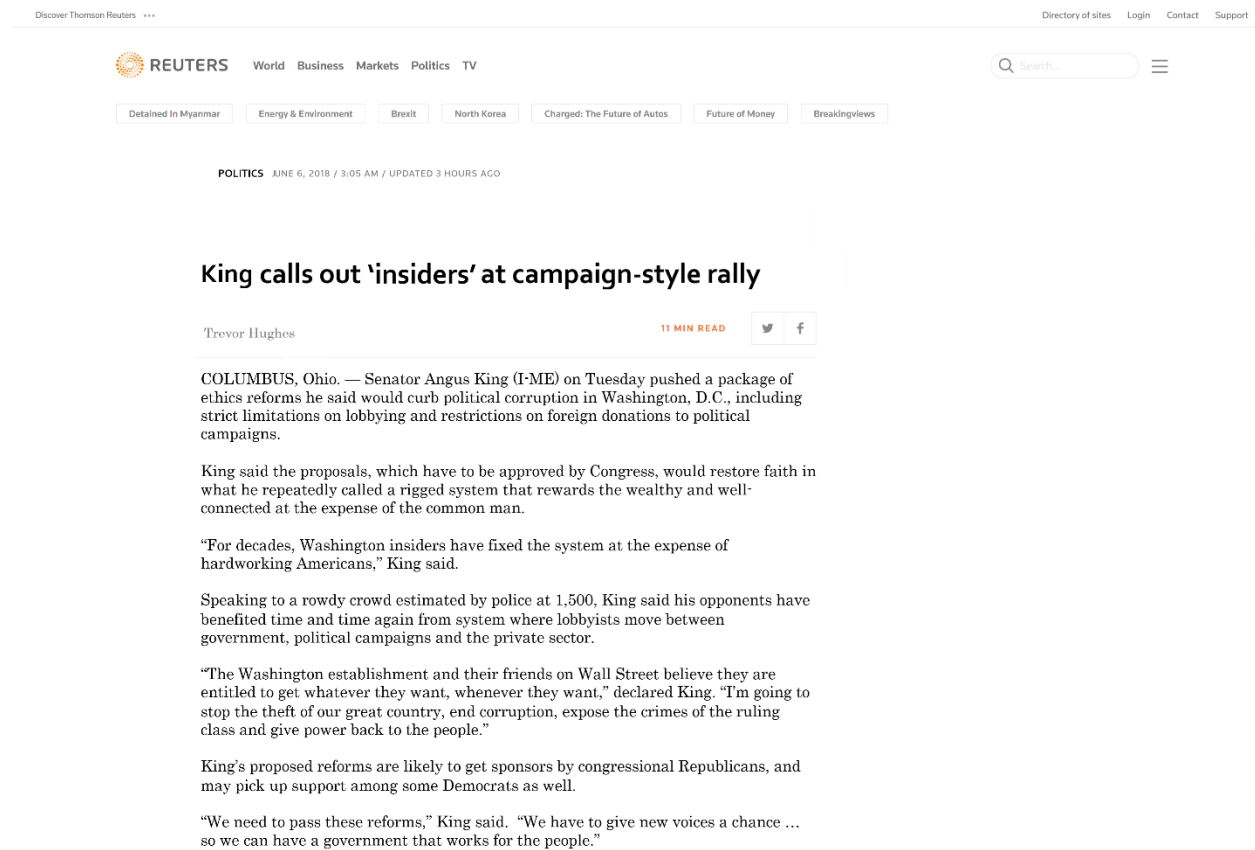


Figure 6. Mock news article – Independent treatment condition.

The second group received an identical article with one exception – the source was altered to Donald Trump, for respondents who identify or lean to the Republican Party, or Bernie Sanders, for everyone else. Sometimes the effectiveness of messages are dependent on characteristics of the speaker (Kuklinski & Hurley, 1994). Bernie Sanders and Donald Trump have reputations as populist, anti-establishment politicians and are both very popular within their

respective political constituencies.⁴ The third group – the control condition – instead read a short article related to a NASA discovery.

Second, I independently randomly assigned subjects into two groups. One group received the battery of questions asking their opinions on climate change, nuclear power, GMOs, and water fluoridation with the following lead:

“Surveys indicate that most scientists and policy experts agree with the following statements. To what extent do you agree or disagree with these positions?”

The control group was simply asked to state their agreement or disagreement with each of those positions. We should generally expect respondents in the treatment condition to be more supportive of the expert position, but, in support for H2, the effect of this should be weaker among those with anti-intellectual predispositions. The combined experimental conditions are shown in Table 3.

The experimental protocol was as follows. Respondents consented to the survey and completed a number of pre-treatment questions gauging their political attitudes and demographics. They were then asked to read the mock news article, which they believed to be real news content, and answered the question battery related to support for scientific positions. Finally, they were debriefed on the nature of the deception in the experiment, given the opportunity to withdraw their consent and provided a code to receive payment through Amazon.^{5 6}

⁴ There was little evidence that the source of the rhetoric made a difference in the results that follow as shown in Table A8 and Figure A5 of the Appendix, so these conditions will be collapsed for the following analysis.

⁵ 83% passed a pair of attention checks embedded in the survey. 68 respondents withdrew their consent and were dropped from all analyses in the paper.

⁶ The expert trust battery was asked post-treatment for a different research question. This could potentially bias the results for this design (Montgomery, Nyhan, & Torres, 2018). However, there is no indication that my rhetoric manipulation directly affected trust in experts. Diagnostic tests on this can be found in Table A9 of the Appendix.

	No consensus cue	Consensus cue	Total
No rhetoric	N=619	N=573	N=1192
Rhetoric – Non-partisan	N=590	N=615	N=1205
Rhetoric – Partisan	N=580	N=637	N=1217
<i>Total</i>	N=1789	N=1825	N=3614

Table 3. Experimental conditionsModels

H2 is tested using OLS regression with an interaction of the scientific agreement cue and anti-intellectualism. However, because moderating variables are observational, we need to worry about confounders (Kam & Trussler, 2017). Thus, the treatment is also interacted with a vector of controls (X), including ideology and partisanship, generalized trust, and political interest. Ideology, partisanship, and generalized trust may condition how respondents process consensus cues from experts and are all highly correlated with anti-intellectualism as conceptualized and measured here. We also have some expectation that political sophisticates are less likely to be responsive to experimental manipulations with their stronger priors, so it is controlled for as well. β_3 should be negative and significant to provide support for H2:

$$\text{support for expert position} = \alpha + \beta_1 \text{consensus cue} + \beta_2 \text{anti-intellectualism} + \beta_3 \text{consensus cue} * \text{anti-intellectualism} + X + \text{consensus cue} * X + \varepsilon \quad (3.3)$$

Finally, we expect anti-elite rhetoric treatment to prime anti-intellectuals to resist messages of expert consensus. This requires a three-way interaction between both treatments and anti-intellectualism, as shown in equation 4:

$$\text{support for expert position} = \alpha + \beta_1 \text{consensus cue} + \beta_2 \text{rhetoric} + \beta_3 \text{anti-intellectualism} + \beta_4 \text{consensus cue} * \text{rhetoric} + \beta_5 \text{consensus cue} * \text{anti-intellectualism} + \beta_6 \text{rhetoric} * \text{anti-intellectualism} + \beta_7 \text{consensus cue} * \text{rhetoric} * \text{anti-intellectualism} + \varepsilon \quad (3.4)$$

Estimated marginal effects are plotted to aid in the interpretation of the interactions in support of H2 and H4.

Experimental Results

Table 4 presents the results of an OLS estimation without the controls from equation 3 for a first test of H2. The top row displays the unconditional treatment effect of the expert agreement cue on support for expert positions. The treatment was effective for nuclear power ($p \sim 0.05$), and for water fluoridation ($p \sim 0.001$), but the effects are substantively small – a 0.02 point increase in support of the expert position for the former and a 0.03 point increase for the latter. This is to be expected as treatment effects for consensus cues are likely to be highly heterogeneous.

In line with the second hypothesis, it appears that anti-intellectualism consistently moderates the effectiveness of the consensus cue treatment across all issues. The interaction is not quite significant for climate change ($p \sim 0.12$), but it is strongly so for nuclear power ($p \sim 0.001$). A consensus cue is expected to be modestly persuasive to those who are the least anti-intellectual (0.09, $p < 0.001$), but crossing the whole range of the anti-intellectualism index leads to a *negative* treatment effect of 0.10 points on the 0-1 scale ($p \sim 0.01$). That is, anti-intellectuals double down on their rejection of expert positions in response to a consensus cue. This finding is similar to the “backfire effect” sometimes found in fact-checking experiments where directionally motivated experimental subjects become more entrenched in their misperceptions in response to the intervention (Nyhan & Reifler, 2010).

	Climate 1	Nuclear 2	GMO 3	Fluoride 4	Combined 5
Cue (Baseline)	-0.01	0.02**	-0.00	0.03***	0.01
Cue * Anti-intellect	-0.08	-0.20***	-0.14**	-0.17***	-0.14***
Cue (Anti-intellect=0)	0.02	0.09***	0.04	0.09***	0.06***
Anti-intellect (Cue=0)	-0.60***	-0.11***	-0.31***	-0.38***	-0.35***

Table 4. OLS estimates for H2, no controls. Note: * <0.1 , ** <0.05 , *** <0.01

The interaction terms are similarly significant for GMOs ($p \sim 0.03$) and fluoride ($p \sim 0.003$). A consensus cue is expected to move those that are the least anti-intellectual towards the expert position on fluoride by a meaningful 0.09 points ($p < 0.001$), but not quite significantly for GMOs (0.04, $p \sim 0.11$). Crossing the range of the anti-intellectualism index is expected to generate a noteworthy backfire effect of 0.10 points in the case of GMOs ($p \sim 0.02$) and 0.08 points for fluoride

($p \sim 0.05$). Averaging across all of the issues used here we would expect a consensus cue to move those that are least anti-intellectual 0.06 points towards the expert consensus position ($p < 0.001$), while producing a backfire effect of 0.09 points among those most anti-intellectual ($p \sim 0.002$). The interaction term is highly significant ($p < 0.001$). The unintended net effect of a consensus cue intervention is to polarize citizens by reported levels of anti-intellectualism.

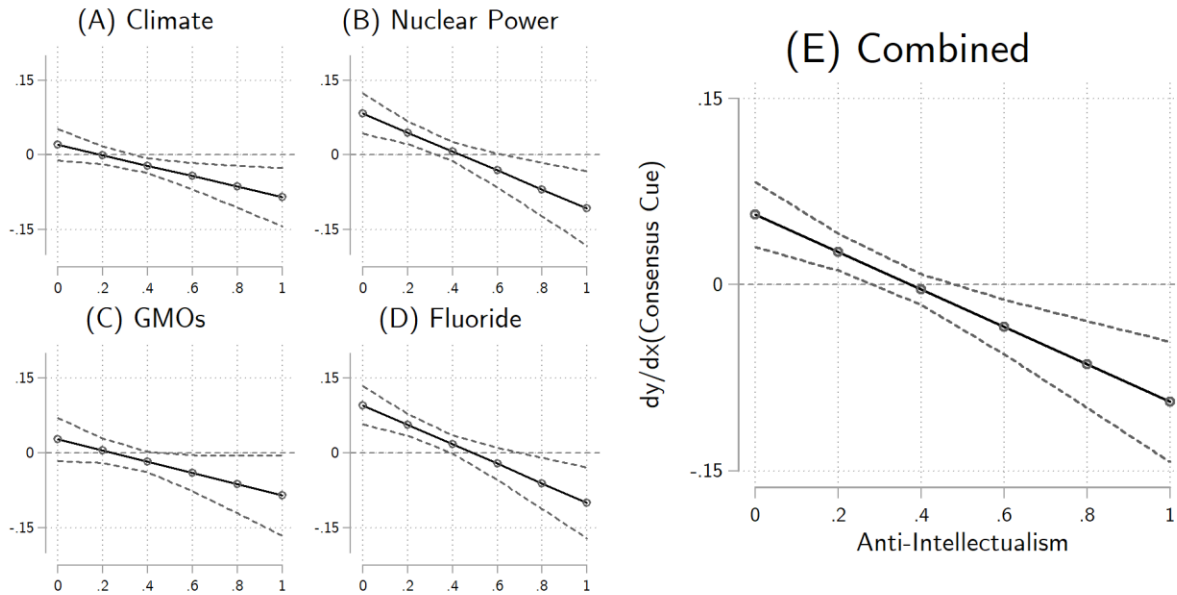


Figure 7. Marginal effects of expert agreement cue conditioned by anti-intellectualism. A) Climate change; B) Nuclear power; C) GMOs; D) Fluoride; E) Average across issues. Note: controls for ideology, partisanship, generalized trust, and political interest. 90% confidence intervals.

Controls need to be added because the moderator of interest used here is observational. Table A6 in the Appendix provides the regression estimates for this task. The results continue to suggest anti-intellectualism is a powerful moderator in the effectiveness of consensus cues. The interaction is significant on three of our four issues below the 0.05 level. The marginal effects of these estimates are shown in Figure 7. Respondents that are the least anti-intellectual are expected to increase their support for the climate consensus by a slight 0.02 points in response to the consensus cue, which is non-significant ($p \sim 0.28$). This decreases approximately 0.10 points for those with the highest levels of anti-intellectualism such that the treatment will *reduce* the agreement of anti-intellectuals with the expert position by a sizable 0.08 points ($p \sim 0.02$). The interaction term is significant ($p \sim 0.04$).

This backfire effect is again common for all of the issues used here. Respondents with the lowest levels of anti-intellectualism are expected to increase their support for the expert position on nuclear power by 0.08 points ($p \sim 0.001$). This effect decreases 0.19 points for those with the highest levels of anti-intellectualism such that they also reduce their agreement with the expert position by 0.11 points ($p \sim 0.02$). The interaction term is highly significant ($p \sim 0.004$). The consensus cue also increases support for the expert position on fluoride by a substantial 0.10 points among those that are the least anti-intellectual ($p < 0.001$), but with a similar backfire effect of 0.10 points among those that are the most anti-intellectual ($p \sim 0.02$). Again, the interaction term is highly significant ($p \sim 0.002$). The interaction for GMOs is not quite significant after including controls ($p \sim 0.11$).

Averaging across all issues, those with the weakest anti-intellectual predispositions increase their support for positions of expert consensus by 0.06 points ($p < 0.001$), while we expect a backfire effect of 0.09 points among those who are the most anti-intellectual ($p \sim 0.001$). The interaction term is highly significant ($p < 0.001$). All told, there is strong support for H2. Anti-intellectualism appears to have a consistent moderating effect on the acceptance of consensus cues from experts. These effects are modest in size, but are precisely estimated because of the large sample used here. The propensity of these cues to backfire among those who hostility towards experts is the strongest wipes out the gains made among those who are least anti-intellectual in the aggregate – a troubling finding for scholars who see consensus cues as an important tool of persuasion for science communicators.

Anti-elite Rhetoric as an Activator of Anti-intellectualism

Observationally there appears to be a very close link between populism and anti-intellectualism. This finding is not particularly surprising given the anti-elite themes scholars have found in anti-intellectual discourse. But, it also means that anti-elite rhetoric may prime people to resist signals from expert communities who are predisposed to doing so. It may do this even when the rhetoric is not about experts per se. The results for this test are presented below. The three-way interaction is difficult to interpret. So marginal effects plots are shown below in Figure 8. The estimates themselves are provided in Table A7 of the Appendix.

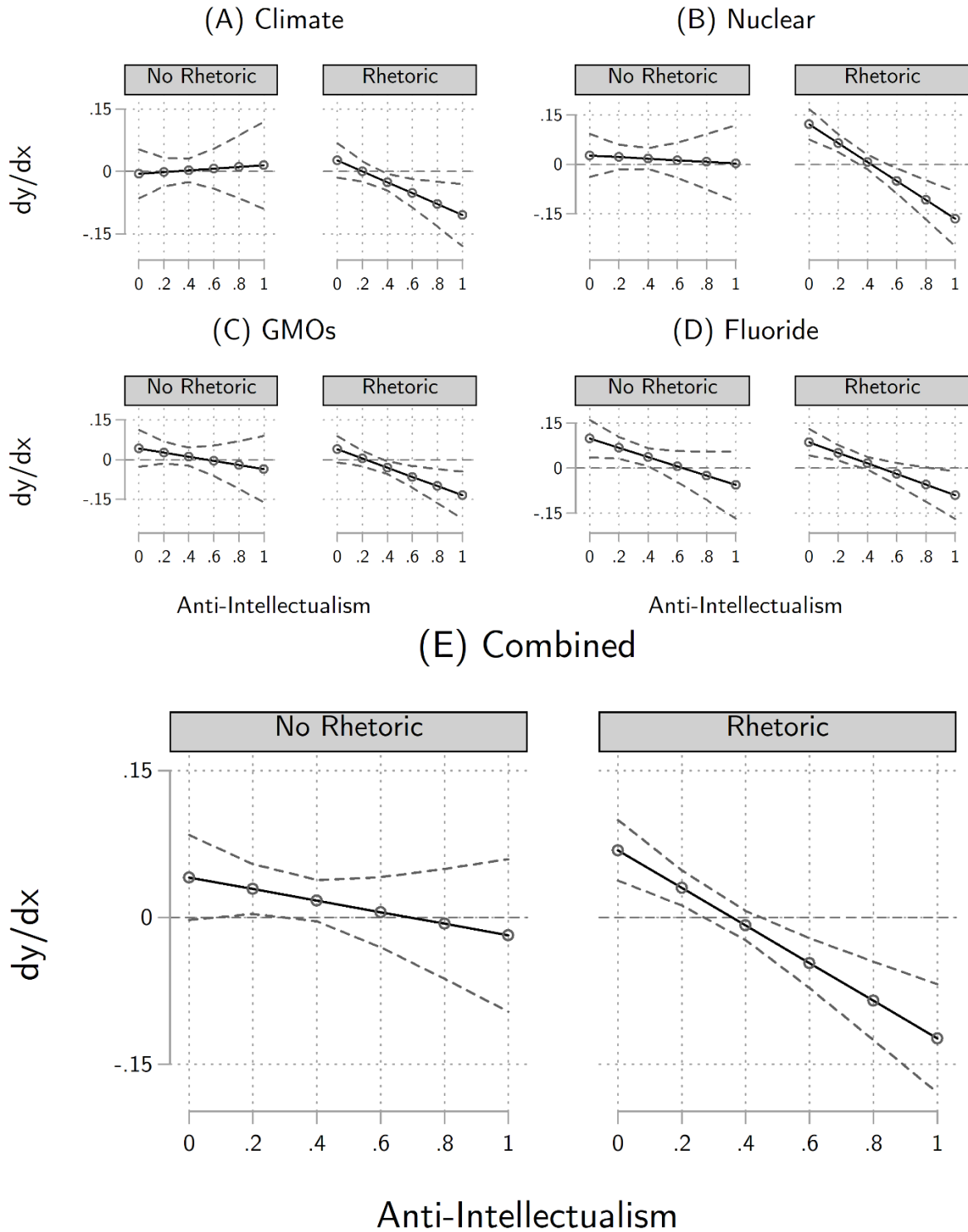


Figure 8. Marginal effects of expert agreement cue conditioned by anti-intellectualism and anti-elite rhetoric. A) Climate change; B) Nuclear power; C) GMOs; D) Fluoride; E) Average across issues. Note: 90% confidence intervals.

The results show some evidence that the anti-elite rhetoric primed those that mistrusted experts to resist the cue on three of four issues. Anti-intellectualism moderated the effectiveness of the consensus cue for climate change, nuclear power, and GMOs, but only when exposed to anti-elite rhetoric. These results provide compelling support for H4 and some troubling evidence that rising anti-elite rhetoric may undermine the persuasiveness of experts among the people that are in most need of persuading. Interestingly, anti-elite rhetoric appeared to trigger persuasion for those that trusted experts. The net result of this is polarization based on reported levels of anti-intellectualism.

Discussion

Anti-intellectualism has been well-documented in American political life. But, we do not have a great understanding of what this concept is, which citizens are more attracted to it, and the implications of this predisposition for political behaviour. This paper offers two primary contributions. First, this paper finds that anti-intellectualism – the generalized mistrust and suspicion of intellectuals and experts – has relevance for political behaviour in its own right, and not simply as a component of conservative ideology. Anti-intellectualism is a strong predictor of support for positions with widespread expert agreement, such as the climate consensus, and the safety of nuclear power, GMOs, and water fluoridation (H1). Their consistency and strength as a predictor far exceeds that of left-right ideology. There is experimental evidence that anti-intellectualism conditions people's acceptance of cues signaling expert agreement (H2). Scholars seeking to understand what influences citizens acceptance of expert messages should place more attention on anti-intellectualism as a structuring predisposition. The finding that consensus cues have the potential to backfire on those who are most anti-intellectual is a troubling unintended consequence of these interventions. More work should be done to extend this finding to other science-based issues, and perhaps issues of consensus for communities of experts other than scientists and doctors.

Second, and perhaps most importantly, this paper shows that anti-intellectualism is strongly associated with populism (H3). This association is not all that surprising given that populism and anti-intellectualism overlap considerably at the conceptual level. But it also means that populist rhetoric may play a role in activating anti-intellectualism as a predisposition when citizens process

information in their environment even when that rhetoric doesn't directly pertain to experts. This paper provides experimental evidence of exactly this. Anti-intellectualism conditions the acceptance of cues signaling expert agreement much more strongly when respondents were exposed to generalized anti-elite rhetoric. The implication is that rising anti-elite rhetoric may make anti-intellectualism a more salient determinant of support for expert positions in the future. Science communicators will be less able to persuade those most in need of persuading.

Future research should be attentive to the role of anti-intellectualism in shaping political attitudes and behaviour. We need stronger theorization of anti-intellectualism as a potentially rich, multi-dimensional concept. Following Rigney (1991), perhaps there is a dimension that captures skepticism toward the value of critical thinking and a privileging of practical, experience-based knowledge, versus abstract, education-based knowledge. Or, there may be a strain of anti-intellectualism rooted in an epistemological rejection of truth, or yet, another dimension anchored in alienation from intellectuals as a dominating class of citizens. Much more work needs to be done in theorizing anti-intellectualism to guide efforts at measurement so we can fully understand how this concept relates to mass behaviour.

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Appendix

Variable	Description	Mean	SD	Max	Min
Anti-intellectualism	Combined index of expert trust questions	0.34	0.17	1	0
Scientist Mistrust	Mistrust a lot-to-Trust a lot, 7-point, rescaled to 3-point	0.23	0.23	1	0
Science Confidence	A great deal/only some/hardly any confidence in scientific community (GSS)	0.32	0.31	1	0
Climate Change	Rating of statement truth "Using coal and gas contributes to the greenhouse effect" (GSS, 1993, 1994 & 2000)	0.62	0.26	1	0
Climate Change	Support for statement "Earth's climate is warming and this is primarily due to the human production of greenhouse gases like carbon dioxide"	0.73	0.30	1	0
Nuclear Power	How dangerous is nuclear power for the environment? (GSS, 1993, 1994 & 2010)	0.39	0.27	1	0
Nuclear Power	Support for statement "Nuclear power is a safe and environmentally-friendly form of energy production compared to conventional sources of energy like fossil fuels"	0.50	0.31	1	0
GMOs	How dangerous is modifying genes in crops for the environment? (GSS, 2000 & 2010)	0.49	0.26	1	0
GMOs	Support for statement "Genetically modified foods are safe, and pose no greater risk to human health than non-GM foods"	0.47	0.47	1	0
Fluoridation	Support for statement "Water fluoridation improves oral and dental health with no safety risk"	0.55	0.30	1	0
Institutional Confidence	First factor from PCA of confidence questions on Congress, executive, Supreme Court, press, major businesses, and banks and financial institutions (GSS, reverse coded)	0.51	0.22	1	0
Institutional Confidence	First factor from PCA of confidence questions on Congress, executive, Supreme Court, press, major businesses, and banks and financial institutions (MTurk, Reverse coded)	0.69	0.20	1	0
Populism	First factor from PCA on populist sentiment questions (MTurk)	0.57	0.20	1	0

Variable	Description	Mean	SD	Max	Min
Ideology	Extremely liberal-to-extremely conservative (GSS)	0.51	0.25	1	0
Ideology	Extremely liberal-to-extremely conservative (MTurk)	0.43	0.30	1	0
PID	Strong Democrat-to-strong Republican (GSS)	0.44	0.32	1	0
PID	Strong Democrat-to-strong Republican (MTurk)	0.43	0.36	1	0
Male	GSS	0.44	0.50	1	0
Male	MTurk	0.42	0.49	1	0
Employed	Full-time worker (GSS)	0.46	0.50	1	0
Employed	Full-time worker (MTurk)	0.60	0.49	1	0
White	White, non-hispanic (GSS)	0.74	0.44	1	0
White	White, non-hispanic (MTurk)	0.75	0.43	1	0
Age	In years (GSS)	49	17.62	89	18
Age	In years (MTurk)	39	13.16	87	18
Income	Less than 1000/1000-2999/3000-3999/4000-4999/5000-5999/6000-6999/7000-7999/8000-9999/10000-14999/15000-19999/20000-24999/25000 or more (GSS)	10.88	2.41	12	1
Income	Under 20000/20000-39999/40000-59000/60000-79000/80000-99999/100000-119999/120000 and over (MTurk)	3.47	1.73	7	1
Education	Less than high school/high school/junior college/bachelor degree/graduate degree (GSS)	2.64	1.23	5	1
Education	Less than high school/high school/junior college/bachelor degree/graduate degree (MTurk)	3.66	0.88	5	1
Church Attendance	Never/less than once a year/once a year/several times a year/once a month/2-3x a month/nearly every week/every week/more than once a week (GSS)	3.42	2.81	8	0
Church Attendance	Never/less than once a year/once a year/several times a year/once a month/2-3x a month/nearly every week/every week/more than once a week (MTurk)	2.58	2.67	8	0
Trust	Can't be too careful/it depends/can generally be trusted (GSS)	1.31	0.92	2	0
Trust	Can't be too careful/it depends/can generally be trusted (MTurk)	0.86	0.78	2	0
Political Interest	Not at all interested/somewhat interested/interested/very interested (MTurk)	2.17	0.73	3	0

Table A1. Variable descriptions and descriptive statistics

	Climate 1	Nuclear 2	GMO 3
Confidence in Science (Reverse Coded)	-0.05*** (0.02)	-0.04* (0.02)	-0.08*** (0.03)
Ideology	-0.09*** (0.03)	0.04 (0.03)	0.07* (0.03)
PID	-0.07*** (0.02)	0.09*** (0.02)	0.03 (0.03)
Male	0.01 (0.01)	0.10*** (0.01)	0.09*** (0.02)
Employed	-0.03** (0.01)	0.01 (0.01)	0.01 (0.02)
White	0.01 (0.02)	0.06*** (0.02)	0.02 (0.02)
Age	-0.00** (0.00)	0.00*** (0.00)	0.00** (0.00)
Income	0.00 (0.00)	0.00* (0.00)	-0.00 (0.00)
Education	-0.00 (0.01)	0.03*** (0.01)	0.02** (0.01)
Church Attendance	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)
Trust	0.00 (0.01)	-0.03*** (0.01)	-0.01 (0.01)
Constant	0.76***	-0.01	0.24***
R ²	0.03	0.16	0.08
N	1868	2024	1047

Table A2. Determinants of support for expert positions, GSS. Note: standard errors in parentheses, *p<0.1, **p<0.05, ***p<0.01

	Climate 1	Nuclear 2	GMO 3	Fluoride 4	Combined 5
Anti-intellectualism	-0.39*** (0.06)	-0.23*** (0.08)	-0.29*** (0.08)	-0.28*** (0.08)	-0.30*** (0.05)
Ideology	-0.43*** (0.06)	-0.03 (0.08)	-0.17** (0.08)	-0.18** (0.08)	-0.20*** (0.05)
PID	-0.02 (0.05)	0.06 (0.06)	0.10 (0.07)	0.05 (0.06)	0.05 (0.04)
Male	0.01 (0.02)	0.12*** (0.03)	0.04 (0.03)	0.05** (0.03)	0.06*** (0.02)
Employed	0.02 (0.02)	-0.01 (0.03)	0.00 (0.03)	0.01 (0.03)	0.01 (0.02)
White	0.02 (0.02)	0.06** (0.03)	0.02 (0.03)	0.02 (0.03)	0.03 (0.02)
Age	0.00 (0.00)	-0.00* (0.00)	-0.01*** (0.00)	-0.00 (0.00)	-0.00*** (0.00)
Income	-0.00 (0.01)	0.01* (0.01)	0.00 (0.01)	0.01 (0.01)	0.00 (0.01)
Education	-0.00 (0.01)	0.05*** (0.02)	0.06*** (0.02)	0.04*** (0.01)	0.04*** (0.01)
Church Attendance	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.01)	-0.00 (0.00)	-0.00 (0.00)
Trust	-0.01 (0.01)	0.04** (0.02)	0.06*** (0.02)	0.03** (0.02)	0.03*** (0.01)
Political Interest	0.02 (0.01)	0.03* (0.02)	0.03 (0.02)	0.04** (0.02)	0.03*** (0.01)
Constant	1.03***	0.23***	0.44***	0.39***	0.52***
R ²	0.34	0.14	0.15	0.13	0.26
N	552	552	552	552	552

Table A3. Determinants of support for expert positions, MTurk. Note: standard errors in parentheses, *p<0.1, **p<0.05, ***p<0.01

DV = Combined Expert Consensus Index	
Anti-intellectualism	-0.02 (0.16)
Political Interest	0.07*** (0.03)
Political Interest * Anti-intellectualism	-0.12* (0.07)
Constant	0.53***
Controls	Yes
R ²	0.25
N	552

Table A4. Information, anti-intellectualism interaction, MTurk. Note: controls for ideology, partisanship, gender, employment, race, age, income, religiosity, and generalized trust; standard errors in parentheses, *p<0.1, **p<0.05, ***p<0.01

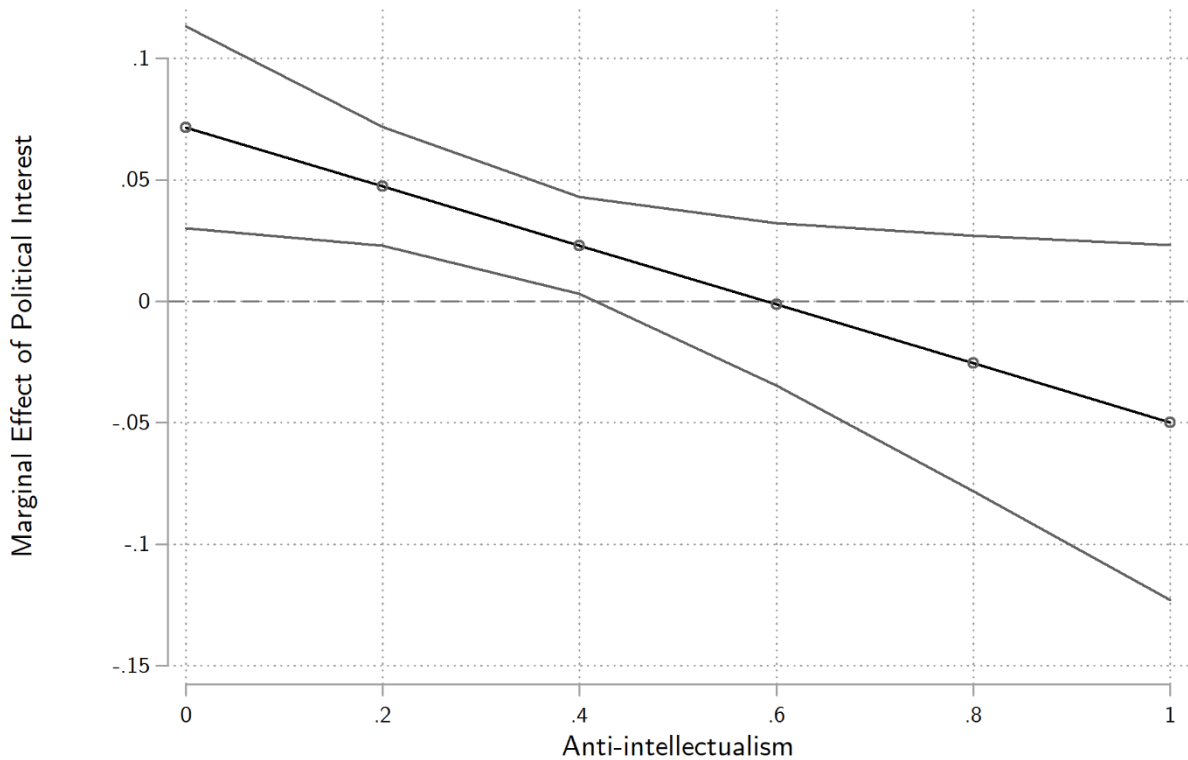


Figure A1. Marginal effect of political interest across anti-intellectualism. Note: 90% confidence intervals.

	Lack of Confidence in Science (GSS)	Scientist Mistrust (MTurk)		Anti-intellectualism (MTurk)	
	1	2	3	4	5
Lack of Confidence in Institutions	0.36*** (0.03)	0.17*** (0.03)		0.20*** (0.02)	
Populism			0.14*** (0.03)		0.22*** (0.02)
Ideology	0.05 (0.03)	0.19*** (0.03)	0.18*** (0.03)	0.14*** (0.03)	0.13*** (0.02)
PID	0.05* (0.03)	0.10*** (0.03)	0.09*** (0.03)	0.07*** (0.02)	0.06*** (0.02)
Male	-0.06*** (0.01)	0.00 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
Employed	0.04*** (0.02)	0.01 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.01 (0.01)
White	-0.06*** (0.02)	-0.02 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.01)
Age	0.00*** (0.00)	0.00 (0.00)	0.00 (0.00)	0.00*** (0.00)	0.00*** (0.00)
Income	0.00 (0.00)	-0.01** (0.00)	-0.01** (0.00)	-0.01*** (0.00)	-0.01** (0.00)
Education	-0.04*** (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01** (0.01)	-0.01* (0.01)
Church Attendance	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.00*** (0.00)	0.00** (0.00)
Trust	0.03*** (0.01)	-0.02** (0.01)	-0.01* (0.01)	-0.02*** (0.01)	-0.02*** (0.01)
Political Interest		-0.02** (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.01)
Constant	0.06	0.05	0.08*	0.14***	0.13***
R ²	0.17	0.20	0.19	0.24	0.25
N	1455	1062	1083	1027	1044

Table A5. Determinants of anti-intellectualism, GSS and MTurk. Note: standard errors in parentheses, *p<0.1, **p<0.05, ***p<0.01

	Climate	Nuclear	GMO	Fluoride	Combined
	1	2	3	4	5
Anti-intellectualism	-0.36*** (0.04)	-0.09* (0.05)	-0.23*** (0.05)	-0.29*** (0.04)	-0.24*** (0.03)
Cue * Anti-intellectualism	-0.10** (0.05)	-0.19*** (0.07)	-0.11 (0.07)	-0.20*** (0.06)	-0.15*** (0.04)
Ideology	-0.32*** (0.03)	-0.00 (0.04)	-0.15*** (0.05)	-0.12*** (0.04)	-0.15*** (0.03)
Cue * Ideology	-0.03 (0.05)	0.01 (0.06)	-0.03 (0.06)	0.11** (0.06)	0.02 (0.04)
PID	-0.13*** (0.03)	0.06* (0.04)	0.05 (0.04)	0.02 (0.03)	0.00 (0.02)
Cue * PID	-0.04 (0.04)	-0.02 (0.05)	-0.02 (0.05)	-0.07 (0.05)	-0.04 (0.03)
Trust	0.01 (0.01)	0.05*** (0.01)	0.05*** (0.01)	0.04*** (0.01)	0.04*** (0.01)
Cue * Trust	-0.02* (0.01)	-0.03** (0.01)	-0.02 (0.01)	-0.01 (0.01)	-0.02** (0.01)
Political Interest	0.01 (0.01)	0.05*** (0.01)	0.05*** (0.01)	0.05*** (0.01)	0.04*** (0.01)
Cue * Political Interest	-0.03** (0.01)	-0.00 (0.02)	-0.03 (0.02)	-0.03* (0.01)	-0.02** (0.01)
Consensus Cue	0.13*** (0.04)	0.12*** (0.05)	0.12** (0.05)	0.15*** (0.04)	0.13*** (0.03)
Constant	1.02***	0.34***	0.44***	0.53***	0.59***
R ²	0.37	0.04	0.07	0.10	0.19
N	3213	3213	3213	3213	3213

Table A6. Consensus cue treatment moderated by anti-intellectualism. Note: standard errors in parentheses, *p<0.1, **p<0.05, ***p<0.01

	Climate	Nuclear	GMO	Fluoride	Combined
	1	2	3	4	5
Consensus Cue	-0.01 (0.04)	0.03 (0.04)	0.04 (0.04)	0.10*** (0.04)	0.04 (0.03)
Anti-intellectualism	-0.62*** (0.06)	-0.30*** (0.07)	-0.43*** (0.08)	-0.40*** (0.07)	-0.44*** (0.05)
Cue * Anti-intellectualism	0.02 (0.09)	-0.02 (0.10)	-0.08 (0.11)	-0.15 (0.10)	-0.06 (0.07)
Rhetoric	-0.01 (0.03)	-0.10*** (0.03)	-0.03 (0.04)	0.00 (0.03)	-0.03 (0.02)
Cue * Rhetoric	0.03 (0.04)	0.09* (0.05)	-0.00 (0.05)	-0.01 (0.05)	0.03 (0.03)
Rhetoric * Anti-intellectualism	0.03 (0.08)	0.29*** (0.09)	0.17* (0.10)	0.03 (0.08)	0.13** (0.06)
Cue * Rhetoric * Anti-intellectualism	-0.15 (0.11)	-0.26** (0.13)	-0.10 (0.14)	-0.02 (0.12)	-0.13 (0.09)
Constant	0.95***	0.59***	0.60***	0.66***	0.70***
R ²	0.14	0.04	0.08	0.10	0.12
N	3440	3440	3440	3440	3440

Table A7. Consensus cue treatment moderated by anti-intellectualism and rhetoric. Note: standard errors in parentheses, *p<0.1, **p<0.05, ***p<0.01

Merkley – Anti-intellectualism and the Motivated Rejection of Expertise

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SCIENCE JUNE 6, 2018 / 3:05 AM / UPDATED 3 HOURS AGO

Lightning on Jupiter: NASA finally discovers why it's there, and how bolts are similar to Earth's

Trevor Hughes 11 MIN READ

NASA's space probe Juno might have just cracked the code on Jupiter's mysterious lightning.

In the data from Juno's first eight passes by the planet, the spacecraft's Microwave Radiometer Instrument (MWR) detected 377 Jovian lightning discharges. Scientists saw that lightning on Jupiter can be as frequent as it is on Earth.

"The similarities we see in their thunderstorms are rather astounding," study co-author William Kurth, a space scientist at the University of Iowa, told astronomy news website [Space.com](#).

The findings, [published in Nature Wednesday](#), also suggest some differences in Jupiter's lightning compared to Earth's — mainly the location.

"Jupiter lightning distribution is inside out relative to Earth," Juno scientist and lead author of the paper [Shannon Brown said in a statement](#). "There is a lot of activity near Jupiter's poles but none near the equator. You can ask anybody who lives in the tropics — this doesn't hold true for our planet."

Brown said these findings could help scientists' understand how energy flows on Jupiter.

Lightning was first recorded on Jupiter when NASA's Voyager 1 spacecraft flew past the planet in 1979 and recorded very low-frequency radio emissions. Until now, there's been no explanation for the bolts.

Figure A2. Control condition article

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POLITICS JUNE 6, 2018 / 3:05 AM / UPDATED 3 HOURS AGO

Trump calls out 'insiders' at campaign-style rally

Trevor Hughes 11 MIN READ

COLUMBUS, Ohio. — Donald Trump on Tuesday pushed a package of ethics reforms he said would curb political corruption in Washington, D.C., including strict limitations on lobbying and restrictions on foreign donations to political campaigns.

Trump said the proposals, which have to be approved by Congress, would restore faith in what he repeatedly called a rigged system that rewards the wealthy and well-connected at the expense of the common man.

"For decades, Washington insiders have fixed the system at the expense of hardworking Americans," Trump said.

Speaking to a rowdy crowd estimated by police at 1,500, Trump said his opponents have benefited time and time again from system where lobbyists move between government, political campaigns and the private sector.

"The Washington establishment and their friends on Wall Street believe they are entitled to get whatever they want, whenever they want," declared Trump. "I'm going to stop the theft of our great country, end corruption, expose the crimes of the ruling class and give power back to the people."

Trump's proposed reforms are likely to get sponsors by congressional Republicans, and may pick up support among some Democrats as well.

"We need to pass these reforms," Trump said. "We have to give new voices a chance ... so we can have a government that works for the people."

Figure A3. Partisan rhetoric condition, Trump version

The image is a screenshot of a Reuters news article. At the top, the Reuters logo is on the left, and navigation links for 'World', 'Business', 'Markets', 'Politics', and 'TV' are in the center. On the right, there is a search bar and a menu icon. Below the navigation, a row of topic tags includes 'Detained in Myanmar', 'Energy & Environment', 'Brexit', 'North Korea', 'Charged: The Future of Autos', 'Future of Money', and 'Breakingviews'. The article's category is 'POLITICS', dated 'JUNE 6, 2018 / 3:05 AM / UPDATED 3 HOURS AGO'. The headline is 'Sanders calls out 'insiders' at campaign-style rally'. The author is 'Trevor Hughes' and the article is '11 MIN READ'. The text of the article discusses Bernie Sanders' speech in Columbus, Ohio, where he pushed for ethics reforms to curb political corruption. Sanders criticized the 'Washington insiders' who fix the system for their own benefit, and he called for restoring faith in the political system by rewarding the common man instead of the wealthy and well-connected. He also mentioned that his proposed reforms have support from both congressional Republicans and Democrats.

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POLITICS JUNE 6, 2018 / 3:05 AM / UPDATED 3 HOURS AGO

Sanders calls out 'insiders' at campaign-style rally

Trevor Hughes 11 MIN READ

COLUMBUS, Ohio. — Bernie Sanders on Tuesday pushed a package of ethics reforms he said would curb political corruption in Washington, D.C., including strict limitations on lobbying and restrictions on foreign donations to political campaigns.

Sanders said the proposals, which have to be approved by Congress, would restore faith in what he repeatedly called a rigged system that rewards the wealthy and well-connected at the expense of the common man.

"For decades, Washington insiders have fixed the system at the expense of hardworking Americans," Sanders said.

Speaking to a rowdy crowd estimated by police at 1,500, Sanders said his opponents have benefited time and time again from system where lobbyists move between government, political campaigns and the private sector.

"The Washington establishment and their friends on Wall Street believe they are entitled to get whatever they want, whenever they want," declared Sanders. "I'm going to stop the theft of our great country, end corruption, expose the crimes of the ruling class and give power back to the people."

Sanders' proposed reforms are likely to get sponsors by congressional Republicans, and may pick up support among some Democrats as well.

"We need to pass these reforms," Sanders said. "We have to give new voices a chance ... so we can have a government that works for the people."

Figure A4. Partisan rhetoric condition, Sanders version

	Climate 1	Nuclear 2	GMO 3	Fluoride 4	Combined 5
Consensus Cue	-0.01 (0.04)	0.03 (0.04)	0.04 (0.04)	0.10*** (0.04)	0.04 (0.03)
Anti-intellectualism	-0.62*** (0.06)	-0.30*** (0.07)	-0.43*** (0.08)	-0.40*** (0.07)	-0.44*** (0.05)
Cue * Anti-intellectualism	0.02 (0.09)	-0.02 (0.10)	-0.08 (0.11)	-0.15 (0.10)	-0.06 (0.07)
Non-Partisan Rhetoric	-0.02 (0.03)	-0.09** (0.04)	-0.04 (0.04)	-0.01 (0.04)	-0.04 (0.03)
Partisan Rhetoric	0.01 (0.04)	-0.12*** (0.04)	-0.02 (0.04)	0.03 (0.04)	-0.03 (0.03)
Cue * Non-Partisan	0.05 (0.05)	0.06 (0.06)	0.04 (0.06)	0.02 (0.05)	0.04 (0.04)
Cue * Partisan	0.01 (0.05)	0.13** (0.06)	-0.04 (0.06)	-0.04 (0.05)	0.02 (0.04)
Non-partisan * Anti-intellectualism	0.08 (0.09)	0.24** (0.10)	0.15 (0.11)	0.04 (0.10)	0.13* (0.07)
Partisan * Anti-intellectualism	-0.04 (0.10)	0.35*** (0.11)	0.19* (0.11)	0.02 (0.10)	0.13* (0.07)
Cue * Non-partisan * Anti-intellectualism	-0.20 (0.13)	-0.15 (0.15)	-0.16 (0.16)	-0.06 (0.14)	-0.14 (0.10)
Cue * Partisan * Anti-intellectualism	-0.09 (0.13)	-0.38*** (0.15)	-0.04 (0.16)	0.02 (0.14)	-0.13 (0.10)
Constant	0.95***	0.59***	0.60***	0.66***	0.70***
R ²	0.14	0.02	0.04	0.08	0.12
N	3440	3440	3440	3440	3440

Table A8. Non-partisan and partisan rhetoric comparison. Note: standard errors in parentheses, *p<0.1, **p<0.05, ***p<0.01

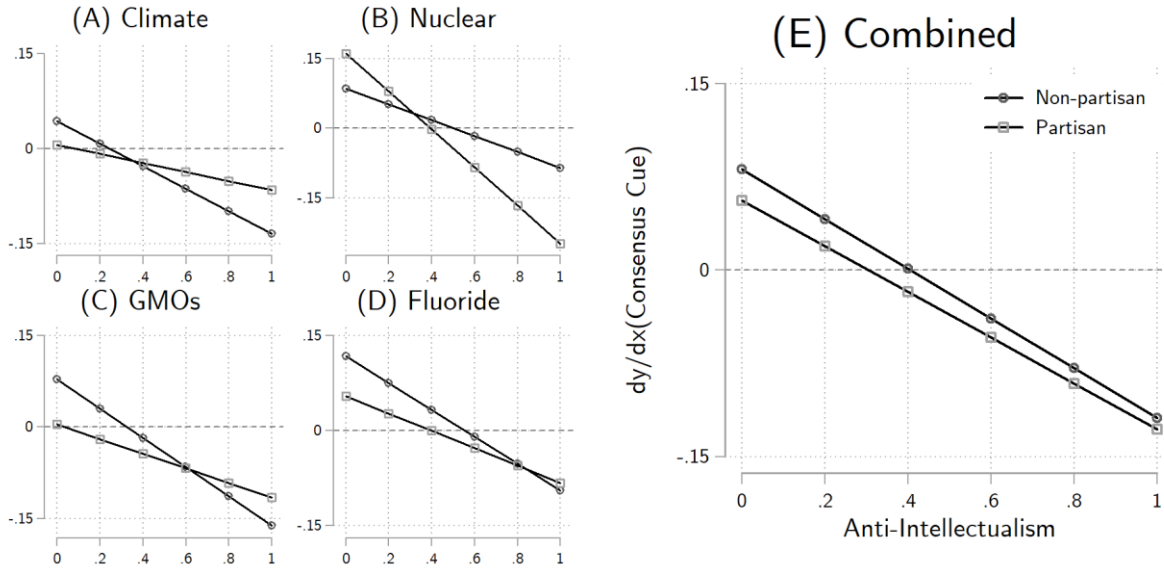


Figure A5. Moderation effect of anti-intellectualism in non-partisan and partisan rhetoric treatment conditions. A) Climate change; B) Nuclear power; C) GMOs; D) Fluoride; E) Average across issues.

DV = Expert Mistrust Battery	
Non-Partisan Rhetoric	-0.00 (0.01)
Partisan Rhetoric	0.00 0.01
R ²	0.00
N	3440

Table A9. Effect of rhetoric treatment on expert mistrust. Note: standard errors in parentheses, *p<0.1, **p<0.05, ***p<0.01