

# The elusive backfire effect: mass attitudes' steadfast factual adherence

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August 5, 2016

## ABSTRACT

Can citizens heed factual information, even when such information challenges their partisan and ideological attachments? The “backfire effect,” described by Nyhan and Reifler (2010), says no: rather than simply *ignoring* factual information, presenting respondents with facts can *compound* their ignorance. In their study, conservatives presented with factual information about the absence of Weapons of Mass Destruction in Iraq became *more* convinced that such weapons had been found. The present paper presents results from four experiments in which we enrolled more than 8,100 subjects and tested 36 issues of potential backfire. Across all experiments, we found only one issue capable of triggering backfire: whether WMD were found in Iraq in 2003. Even this limited case was susceptible to a survey item effect; when presented with a less elaborate survey item, we found no WMD factual backfire. Comparably elaborate items were incapable of instilling backfire in questions other than WMD. Evidence of factual backfire is far more tenuous than prior research suggests. By and large, citizens heed factual information, even when such information challenges their partisan and ideological commitments.

We acknowledge the generous guidance of John Brehm, Emily Ekins, Jim Gimpel, Don Green, Will Howell, David Kirby, Michael Neblo, Brendan Nyhan, and the participants at Center for Strategic Initiatives workshop. The Cato Institute generously provided financial support for this research.

## 1 Introduction

CAN CITIZENS affirm factual information about politics, even when the facts cut against their ideological and partisan beliefs? Or are they destined to view the facts through the “perceptual screen” (Campbell et. al 1960) that partisanship and ideology impress upon them? The answer has significant implications for citizen’s competence in a democracy. If indeed individuals are capable of prioritizing empirical facts over their political allegiances, the prospects for democratic accountability appear bright. If, on the other hand, they are blinded by their perceptual screens, it would be unclear how citizens could hold their elected officials accountable, or indeed what role facts should play in shaping mass attitudes. Nyhan and Reifler (2010) offer strong evidence for the latter position: subjects presented with facts correcting misperceptions relevant to their ideology responded by doubling down on their misperceptions. Particularly among conservatives, attempts to correct misperceptions activated a “backfire effect” against empirical facts, with subjects more strongly expressing a non-factual belief. Subsequent research has corroborated Nyhan and Reifler’s initial finding. Republican subjects provided evidence of the scientific consensus on anthropogenic climate change became *more* opposed the need for environmental regulation (Hart and Nisbet 2011). Providing evidence for the safety of common vaccines to parents already indisposed to vaccinate their children *further reduced* their willingness to vaccinate (Nyhan, Reifler and Richey 2014). Confirming that the Affordable Care Act did not introduce “death panels” for terminal patients entrenched this conviction (Berinsky 2015; Nyhan, Reifler and Ubel 2013). Equally significant is the backfire effect’s prominence in popular political accounts. Political elites habitually cite this research to explain the public’s failure to heed facts consistent with the elite’s policy proposal of the moment.<sup>1</sup>

Another line of research, however, draws a different, less worrisome conclusion. Despite the

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<sup>1</sup> A Google News search for the “backfire”, “backlash”, or “boomerang” effect and the names of Nyhan or Reifler returns over 300 unique articles.

power of party and ideology, citizens are indeed capable of learning (Gerber and Green 1999; Howell and West 2009; Fishkin and Luskin 2005). Sometimes with encouragements, and sometimes with small monetary incentives, citizens can absorb and retain complex new political information (Barnes, Feller, Haselswerdt and Porter 2016; Fishkin 1995; Kuklinski, Quirk, Jerit, Schweider and Rich 2000); and factual receptivity can take place despite partisan differences ( Bullock, Gerber, Hill and Huber 2015; Prior 2007; Prior, Sood and Khanna 2015).

Building on Nyhan and Reifler, the present project maps the boundaries of the backfire effect. What issues provoke resistance to factual information? Which ideological groups, and members of which parties, are most likely to evince backfire? And which issues provoke which ideological groups to backfire? Nyhan and Reifler observed backfire on two high salience issues (whether WMD were found in Iraq and whether tax cuts ultimately increase tax receipts) and found no backfire on one less salient, more technical issue (the specific types of stem cell research prohibited by President Bush.) Testing only three issues makes it difficult to determine if backfire is caused by ideological group differences in factual receptivity, or if their results instead reflect the salience and ideological importance issues being corrected. That is, might liberals also prove factually maladaptive when presented with correction to the right issue?

To address these outstanding questions, we staged four separate studies comprised of more than 30 commonly misunderstood policy areas. Table 1 summarizes the issues corrected. The majority of issues have been purposefully chosen to tap some of the most important ideological symbols along the political spectrum. For liberals, this means correcting their incumbent President's statement about the role of drug sentencing in growing the incarcerated population, and contradicting their party's presumptive Presidential nominee's claim about the incidence of gun violence. For conservatives, we contradicted their presumptive nominee's claim about undocumented immigrants' criminal records, and provided corrections about the incidence of abortion and teen pregnancy. If *any* correction should prompt a respondent to counter-argue unwelcome facts, and inadvertently entrench their pre-correction attitudes, these politically important, readily understood, recurrently debated issues stand out as likely candidates. In Carmines and Stimson's (1980) memorable turn of

phrase, such issues are deemed “easy”, because their recurrence in American politics has rehearsed individuals on how to respond.

Across four studies, in which we enrolled more than 8,100 subjects and tested 36 issues of potential backfire, we observed almost no evidence of a backfire effect. Indeed, we observed only one significant instance of backfire—and even that instance was ameliorated by simplifying the survey item. When presented with facts that correct political leaders, subjects along the ideological spectrum, in possession of diverse partisan attachments, are capable of heeding the correction and bringing their beliefs in alignment with the facts. This occurs even when the corrections directly conflict with subjects’ ideological and partisan commitments.

Ultimately, our results suggest that, contrary to the most skeptical accounts, citizens possess the prerequisites for democratic competence. When presented with factual information, they can heed the facts, even when doing so forces them to separate from their ideological attachments. Of course, ideology and partisanship shaped the *extent* of our subjects’ factual receptivity. The “perceptual screen” that partisanship instills (Campbell et. al 1960) is real. Yet evidence of differential learning along partisan lines does not obviate the overall learning we observe (Green and Gerber 1999). The average subject exposed to the correction subsequently expressed attitudes more in line with the facts. As Lupia and McCubbins (1998) write, “The capabilities of the people and the requirements of democracy are not as mismatched as many critics would have us believe.” Our data lead us to agree.

Our experiments used real instances of misstatements by political leaders from both sides of the aisle. Some subjects were randomly vended a correction, consisting of neutral data from governmental sources. All subjects were then asked whether they agreed with the original misstatement. Two of the studies presented the misstatements as if they were excerpts from a longer newspaper article; a third presented subjects with complete fictitious news articles. Among all issues tested, the only one to generate backfire related to the presence of WMD in Iraq. Yet even this instance of backfire was susceptible to a survey item effect: when presented with a less elaborate survey item, no WMD backfire was detected. For all 35 other issues, subjects exposed to the correction did not

Issue	Speaker	Correction
<b>Study 1</b> ( <i>Full text of statements, corrections, and items can be found in table 3 on page iii.</i> )		
Spiraling Gun Violence	H.Clinton	Gun homicides declined by 50% since 1994
Drugs Drive Prison Growth	Obama	Only 20% of prisoners incarcerated for Drug crimes
Hedge fund mangers pay less tax than workers	H.Clinton	Average hedge fund manager pays twenty times as much tax
Discrimination sole cause of gender wage gap	Obama	Discrimination accounts for only a fraction of the wage difference
Obama cuts defense	Rubio	Obama has increased defense spending relative to Bush
Mexican Immigrants disproportionately criminal	Trump	Undocumented immigrants offend at lower rate than general population
Rising violence against police	Cruz	Number of police officers killed currently at 130 year low
US taxes highest in world	Trump	US taxes second lowest among all OECD members
<b>Study 2</b> ( <i>Full text of statements, corrections, and items can be found in table 5 on page x.</i> )		
Obama Passed TARP	Palin Obama	TARP was passed by George W Bush
Obama accommodates undocumented immigrants	Cruz Gutierrez	Obama deported undocumented immigrants at twice the rate of George W Bush
Spiraling teenage pregnancy rate	Carson Lee	Since 1991, black teen pregnancy fallen by 66%, 50% among whites
China holds most US debt	Romney Obama	China holds about 12% of US debt
Whites soon a racial minority	Graham Langoria	Whites will be a majority until at least 2045, majority of voters until 2070
Spiraling Chicago homicides	LaPierre Obama	Chicago homicides at 36 year low
Spiraling abortion rate	Ryan Obama	Abortion rate at 40 year low
Obama curtails drones' use	Graham Obama	Obama has ordered ten times as many strikes as his predecessor
<b>Study 3</b> ( <i>Articles and corrections can be found in section A.5 on page xii</i> )		
Spiraling Chicago homicides	Obama LaPierre	Chicago homicides at 36 year low
Mexican Immigrants disproportionately criminal	Trump	Undocumented immigrants offend at lower rate than general population
Spiraling Abortion Rate	Ryan	Abortion rate at 40 year low
Solar has more jobs than oil	Clinton	Oil industry employs four times more people than solar power.
US Health care twice as expensive as all other states	Sanders	Swiss health care only 40% less expensive per capita than the US
WMD were found in Iraq	Bush	No WMD were found in Iraq.
<b>Study 4</b> ( <i>Articles and corrections can be found in section A.8 on page xv. Survey items can be found in table 9 on page xx</i> )		
WMD were found in Iraq	Bush	No WMD were found in Iraq.
Spiraling Abortion Rate	Ryan	Abortion rate at 40 year low
Real unemployment rate >30%	Trump	Unemployment is currently 4.9% (February 2016)
Tax cuts will pay for themselves	Trump	Trump tax plan will increase deficit by almost \$10 trillion
EPA: fracking pollutes water	Sanders	EPA finds no systematic relationship between fracking and water pollution
Solar has more jobs than oil	Clinton	Oil industry employs four times more people than solar power.

Table 1: Summary of Issues, Speakers, and Corrections across four studies.

reject it—even when the correction conflicted with a speaker who shared their ideology and partisan affiliation.

In the first study, we showed subjects eight instances of actual public comments from political figures, in which the speaker diverged from available empirical evidence. Four of the misstatements came from Democrats; four came from Republicans. On no issue did we observe backfire. Regardless of their party and ideology, the average subject who saw a correction brought her views closer in line with the facts. For the second study, we identified issues about which politicians from both ends of the ideological spectrum had made misstatements that could be corrected by reference to neutral data. For example, political leaders from both parties have made erroneous claims about the abortion rate and immigration enforcement. Yet once again, regardless of party or ideology, the average subject exposed to corrective facts was made more in agreement with these facts, even when doing so required her to reject a co-partisan leader's misstatements.

In the third study, subjects read fictitious newspaper articles containing real misstatements from politicians. For each article, some subjects were randomly assigned to read a version of the article in which a corrective paragraph was embedded. The paragraph recited data from a neutral source. Subjects in this study were also exposed to a replication of the original Nyhan and Reifler news article about WMD in Iraq. When presented with the original survey item that Nyhan and Reifler used to measure backfire, subjects did indeed backfire, rejecting the facts presented to them. Yet subjects shown a more succinct survey item did not display backfire. In all other cases in Study 3, regardless of party or ideology, the average subject exposed to a correction expressed greater agreement with the facts than those to whom no correction had been vended.

In our final study, we test if comparably complicated survey items can induce backfire in other policy areas. Subjects again read fictitious newspaper articles with randomized corrections, before being presented a survey item from one of three levels of complexity. While we again find that WMD backfire is only apparent with a complicated survey item, comparably complex items failed to induce backfire in other policy areas. The ability of WMD and a particular survey item to provoke backfire is unique among all those we tested.

Our findings do not lead us to conclude that backfire is categorically impossible. Certain issues and certain questions—perhaps asked at moments when ideology or partisanship, or both, are particularly salient—might plausibly trigger factual backfire. However, despite conducting our experiments during the height of the presidential primary, on issues of keen political interest, we were unable to locate a single issue of backfire robust to survey item effects. The backfire effect is far less prevalent than existing research would indicate. It also does not appear to be the exclusive provenance of one ideological group or one party. Instead, we observe members of both parties, and individuals across the ideological spectrum, reliably adopting corrections. When presented with information that conflicts with their political leaders, citizens take a Joe Friday approach: They choose just the facts, ahead of their party or ideology.

## 2 Why Would Backfire Matter?

Were the backfire effect to be observed across a population, the implications for democracy would be dire. Facts are meant to matter in a democracy. This is not always the case, of course; politicians frequently make claims that depart from the truth (Mearsheimer 2012), as do individuals trying to win political arguments. Yet citizens are expected to be able to use facts to hold their leaders, and each other, accountable. If a politician promised something but fails to achieve it, the fact of that promise may be recalled in the voting booth; if an interlocutor claims something has happened that plainly has not happened, the discrepancy may be pointed out. While consensus on contentious political issues will rarely be achieved, the public debate around such topics is meant to be reason- and evidence-based (Rawls 1997). Conceptions of democracy that focus on citizen deliberation emphasize the necessity of sincere, fact-based debate (Cohen and Sabel 2002). Over 200 years ago, Condorcet imagined that collective democratic judgments would benefit from a “miracle of aggregation,” where misunderstanding due to informational lassitude or ideological bias would offset, and *average* opinions would reflect an informed weighted consensus (Converse 1990).

In the memorable words of Delli Carpini and Keeter (1996), factual information constitutes

the “currency of citizenship.” The backfire effect would render this currency close to worthless. A citizen who rejects facts, instead opting to strongly adopt her preferred leader’s mistruths, would have difficulty holding her leaders accountable (Hochschild and Einstein 2015). She would be unable to differentiate propaganda (political information that hinges on falsehoods Stanley 2016), from evidence-based information desirable for democratic deliberation (Gutmann and Thompson 2004). For the individual who reject the facts, a speaker’s ideological polarity is all that matters—not the probity of their claims.

The backfire effect is one part of a broader literature that gives us reason to doubt citizens’ democratic competence. There is voluminous evidence that the average citizen is misinformed about politics—lacking knowledge about candidates, their policies, and especially the factual circumstances that shape policy response (Campbell et al 1960; Converse 1964). Low levels of political knowledge have persisted for decades (Delli Carpini and Keeter 1996). Without a modicum of political knowledge, voters make egregious mistakes, such as holding politicians accountable for shark attacks (Bartels and Achen 2012) and local sports scores (Healy, Malhotra, and Mo 2010), or using recent local weather to evaluate the plausibility of anthropogenic climate change (Egan and Mullen 2012).

A divergent perspective posits that, despite low default levels of political knowledge, citizens make do by relying on a toolkit of cognitive shortcuts. These heuristics cut through the clutter and prove startlingly efficient as decision aids (Lau and Redlawsk 2001; Lupia 1994; Popkin 1995). Though the modal amount of political knowledge may be “astonishingly low” (Converse 1964), citizens are capable of changing their beliefs in response to new, contrary information (Gilens 2001; Howell and West 2009; Kuklinski et al 2000). Citizens can learn new political information even when it’s complex (Fishkin 1996; Barnes, Feller, Haselswerdt and Porter 2016), and can demonstrate fealty to the facts despite partisan attachments (; Bullock, Gerber, Hill and Huber 2015; Prior 2007; Prior, Sood and Khanna 2015). Research which portrays citizens as deficient in political knowledge or unable to evaluate political information without bias may suffer suffer from measurement error or exaggeration (Achen 1975; Druckman, Fein, and Leeper 2011; Gibson and Caldiera 2009).

Given limitations on citizens’ time and cognitive capacities, parties and political leaders beckon



as promising decision aids. A voter does not have to know everything about an issue to evaluate it; she can rely on what trusted leaders have to say about the issue in question (Zaller 1992). Reliance on partisan cues, however, breeds its own perversions. Partisans have fundamentally divergent understandings of the factual landscape (Bartels 2002; Jerit and Barabas 2012). Partisan stereotypes shape candidate evaluation (Rahn 1993), assessments of how politicians have performed in office, and agreement with objective facts about macroeconomic behavior (Bartels 2002). Partisans may be intrinsically motivated to support or agree with their co-partisans, at a cost to factual accuracy (Taber and Lodge 2006). By the comprehensive accounting of Lenz (2012), citizens utilize facts when considering performative aspects of a politician's time in office—how well the economy fared under a president's stewardship, for example—but disregard them when thinking through policy matters. In their description of the influence that party wields over political behavior, Campbell et al (1960) find that partisanship brings with it “a persistent adherence and a resistance to contrary influence.”

The backfire effect exemplifies such resistance. Citizens who demonstrate it are only following the implications of their supposed dependence on ideological cues. In Nyhan and Reifler's initial landmark work on the subject (2010), college-age respondents were presented with fictitious news articles, designed to look and read like real news articles. In some of the articles, Nyhan and Reifler embedded a correction, consisting of factual evidence contradicting a political leader. Most famously, they showed all subjects an article about President Bush's search for WMD in Iraq, while showing subjects in the treatment condition a factual correction emphasizing that, in fact, no WMD were found. Conservatives exposed to the correction became *more* likely, on average, to think that WMD were found. Conversely, the average liberal exposed to facts about President Bush's stem cell prohibitions—he prohibited some, but not all, research—heeded the correction.

Our experiments were designed to provide subjects with a hard test of their receptivity to factual information, and an easy test for the factual backfire hypothesis. We clearly marked each leader's partisan affiliation, to underscore the fact that agreeing with the correction would mean disagreeing with the party. To increase the chance of factual backfire, we corrected issues which are subject to frequent and pitched political debate, so that rehearsed partisan arguments might

be readily accessible to our respondents. We conducted the studies at the height of both parties' presidential primaries, and in many cases, corrected leading primary candidates on issues central to their candidacy. To reject the leader and accept the correction would be tantamount to rejecting one's partisan "team" (Green, Palmquist and Shickler 2002). Crucially, unlike previous studies that have found the effects of partisanship on factual receptivity can be lessened, we did not offer subjects monetary incentives to provide correct answers (Prior 2007; Prior, Sood and Khanna 2015; Bullock, Gerber, Hill and Huber 2015). We did not even ask or encourage them to provide correct answers, as has been done elsewhere (Bolsen, Druckman and Cook; 2014; Prior and Lupia, 2008). We simply presented subjects in the correction condition with a political leader's misstatement and a neutral correction. In sum, we provided the ideal experimental context to observe factual backfire.

### 3 The nature of our factual corrections and issues

Journalistic fact checkers strictly appraise the express meaning of officials' public statements. We follow Nyhan and Reifler by eschewing this standard. Inspecting our statements demonstrates that, in most cases, politicians *allude* to some inaccurate circumstance, without expressly lying. Since we exclusively use genuine pieces of political rhetoric, elites' rhetorical strategies limit the extent to which we can directly contradict the public speaker. For instance, President Bush referred to the risk that Saddam Hussein would pass WMD to terrorists, Congressman Ryan said that President Obama sought to make abortions more common, President Obama indicated that drone strikes degrade America's standing abroad and accordingly should be subjected to strenuous restrictions.<sup>2</sup> In these cases, the respective misapprehensions these speakers sought to instill—respectively: that Hussein possessed WMD, that abortions have become more frequent, and drone strikes less so—was not

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<sup>2</sup> There are some cases among our misstatements where the speaker's statement is directly corrected—for instance, Trump's statement about the criminal propensities of undocumented immigrants, or Clinton's claim about the relative number of Americans employed in the solar sector.

directly expressed, but was rather the obvious conclusion that a reasonable respondent might reach. It's these impressionistic inferences of survey respondents, rather than the literal interpretation of each statement, which guide our choice of corrections.

In setting this standard, we are guided by our desire to measure the determinants of mass attitudes, rather than scrutinize office holders' public statements. If it was the case that survey respondents closely scrutinize the precise limits of a speech, and refuse to make any inference not *directly* expressed in a statement, this will be apparent in our experiments. Specifically, we would observe consistent rejection of these misapprehensions across the ideological spectrum, even absent a correction. If, however, respondents are only fleetingly engaged with the experiments, minimizing the effort they spend parsing treatments (Krosnick 1991, Krosnick, Narayan, Smith 1996), and use their metaphorical capacity to quickly elaborate a statement's implications (Tversky and Kahneman 1983), even when the statements are figurative—these suggestive statements should prompt misapprehensions outside their strict interpretation.

In our experiments, we correct misstatements that refer to unambiguous political and social truths, rather than taking a side in a political debate. Americans can strenuously debate the wisdom of the Iraq War, what limits to place on abortion, the ideal size of the US prison population—these debates reflect differences in political identities and moral priorities, rather than different sets of facts. Accordingly, we do not ask respondents to change their *policy preferences* in response to facts—they are instead asked to adopt an authoritative source's description of the facts, in the face of contradictory political rhetoric.

## 4 Study 1

In the first study, subjects were presented with eight genuine public comments from politicians. In each instance, the politician's comments were at odds with available empirical facts. We selected misstatements about issues important to both ends of the ideological spectrum, and we evenly divided our speakers between the major parties. For each issue, a subject was randomly exposed, or

not exposed, to a correction that cited neutral government data to rebut the speaker. For each issue, all subjects were asked whether or not they agreed with the position that the speaker had articulated, for which the empirical data served as the correction.

For example, we presented all subjects with remarks made by Secretary Hillary Clinton on the subject of gun violence. In October 2015, Secretary Clinton said:

“Between 88 and 92 people a day are killed by guns in America. It’s the leading cause of death for young black men, the second leading cause for young Hispanic men, the fourth leading cause for young white men. This epidemic of gun violence knows no boundaries, knows no limits, of any kind.”

Those randomly vended a correction were then told:

“In fact, according to the FBI, the number of gun homicides has fallen since the mid 1990s, declining by about 50% between 1994 and 2013.”

All subjects were then asked to agree or disagree, on a five-point scale, with the following claim:

“The number of gun homicides is currently at an all time high.”

We repeated this structure with comments from President Obama on the causes of incarceration; Secretary Clinton on the progressivity, or lack thereof, of the US tax rate; President Obama on the causes of the gender wage gap; Senator Rubio on the trajectory of U.S. defense spending; Donald Trump on immigration from Mexico; Senator Cruz on violence against police officers; and Donald Trump on the U.S. tax rate in comparative perspective. With a dateline at the top, the statements were designed to look like excerpts from news articles. All corrections provided came from governmental organizations and were cited as such. The order of issues was randomized for each subject. All speakers’ partisan affiliations were prominently displayed. (Consult table 3 on page iii for the full text of the speakers’ remarks, the corrections appended, and the wording of the agreement item.)

More formally, each experiment is an adapted latin squares design (Cochran & Cox, 1960):

$$\begin{array}{cccc} T_1 & T_2 & \cdots & T_j \\ T_2 & T_3 & & \vdots \\ \vdots & & \ddots & \\ T_j & \cdots & & T_1 \end{array}$$

where  $j$  indexes the total number of treatments in some study, the rows indicate the order in which a respondent saw each treatment, and the columns indicate the possible permutations of treatments.

An additional complication comes in the form that every treatment was either corrected or uncorrected. That is, each respondent was exposed to some  $c$  count of corrections, where  $c$  is an element of the set  $\{0, 1, 2, \dots, j\}$ . Section 8.2 on page 29 describes the tests to ensure that these elements of correction exposure did not introduce confounding related to respondents' characteristics. Section 8.3 on page 31 describes results which show that this design did not introduce demand characteristics or otherwise affect responses. A final complication came in study 4, where each respondent was exposed to one of three levels of survey item complexity. These items are provided in table 9 in the appendix on page xx.

#### 4.1 Study 1 Results

Subjects ( $n=3,127$ ) were recruited via Amazon's Mechanical Turk platform. For all three studies, we estimated linear models of the following form

$$\begin{aligned} \text{Agreement}_i = & b_0 + b_1(\text{ideology}) + b_2(\text{correction}) + b_3(\text{ideology} \times \text{correction}) + \quad (1) \\ & b_4(\text{ideology}^2) + b_5(\text{ideology}^2 \times \text{correction}) + \\ & b_6(\text{ideology}^3) + b_7(\text{ideology}^3 \times \text{correction}) \end{aligned}$$

where  $i$  indexes issues. Agreement was measured on a five point likert scale, with larger values indicating stronger agreement. Ideology is measured on a 7 point likert scale, with larger values indicating increased conservatism. Corrections are measured with a dummy variable.<sup>3</sup> Polynomial

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<sup>3</sup> The choice of the OLS model, and the specific measures for agreement, ideology, and correction, were chosen to reflect Nyhan and Reifler's (2010) original specifications. This aids the comparison of our respective results.

terms for ideology and its interaction with the correction were included to capture these variables' non-linear interactions.

Figure 1 presents the predicted values and their 95% confidence intervals from each regression model, with ideology mapped to the x-axis and separate curves for uncorrected (light gray) and corrected (dark gray) ribbons. For each issue, the average corrected subject increased their agreement with the facts. No ideological group exposed to the correction moved in the opposite direction; that is, no group demonstrated what Nyhan and Reifler called backfire. Section A.11 shows that estimating correction effects along the partisan spectrum also shows no evidence of backfire.

The arrangement of issues within figure 1 is also informative. The facets are sorted by mean slope between agreement and ideology—with the strongest ideological effects in the top left and bottom right facets. Correction effects (depicted here as the vertical difference between ribbons) are as large as the *total* effect of ideology for certain issues. Consider, for instance, the ideological effects among those evaluating the level of gun violence (in response to Secretary Clinton) or President Obama's level of defense spending (in response to Senator Rubio). For both issues, the correction moves respondents about 1 point along the 5 point scale, which is the same total ideological effect. These are the issues with the weakest ideological effects, and the largest correction effects. Those issues with the strongest ideological differences (Donald Trump's statement on immigrants, and President Obama's claim on the causes of the gender wage gap) feature a mean correction effect which is less than a fifth the size of total ideological effect. This study evidently succeeded in testing issues of varied ideological salience. Despite what the backfire hypothesis would predict, neither issues of high nor low salience issues triggered factual backfire.

## 5 Study 2

For this study, we identified issues about which speakers from both sides of the aisle had departed from the available evidence. While the comments themselves were naturally distinct, they could

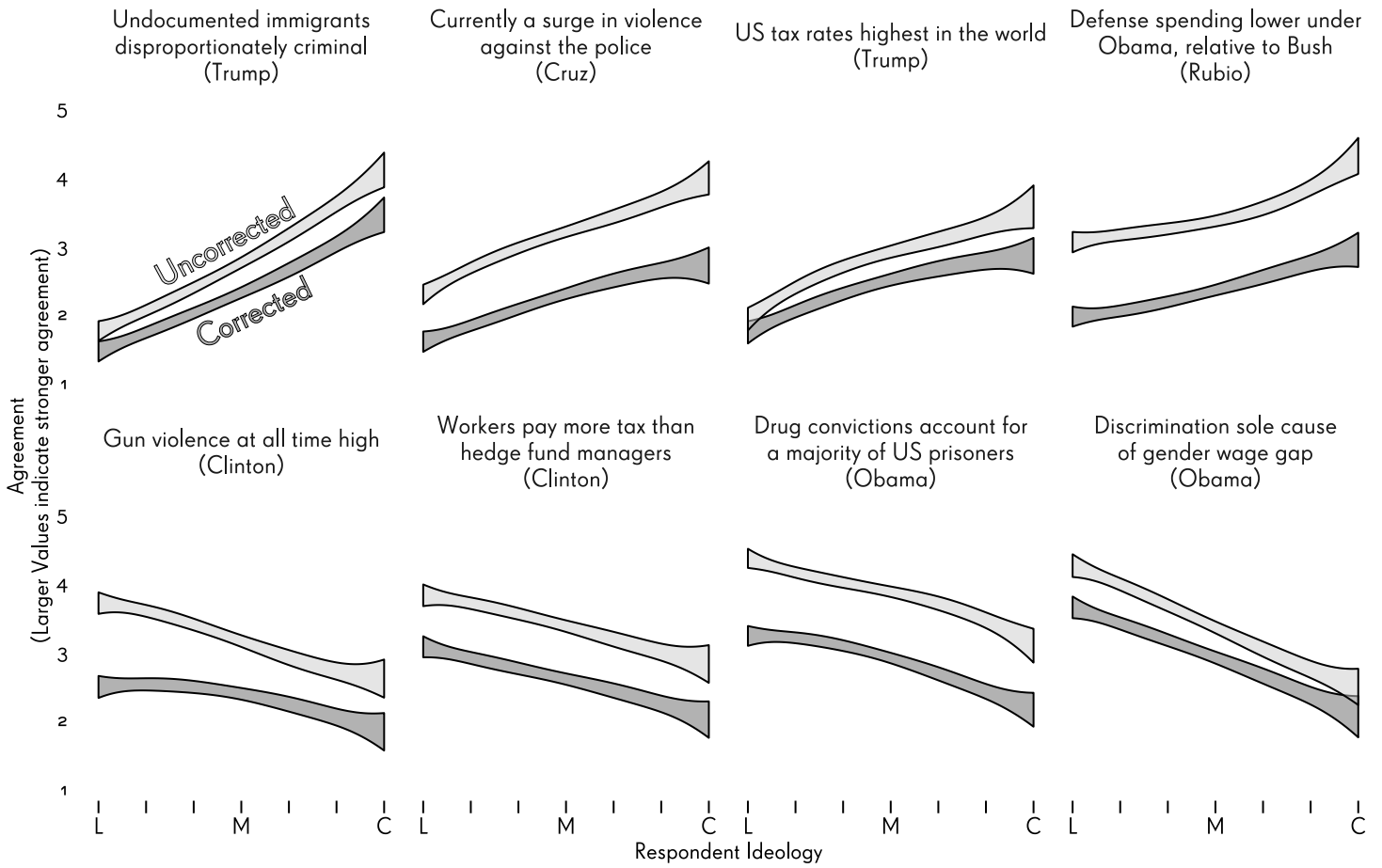


Figure 1: Study 1 correction effects. Curves are the conditional predictions and their 95% confidence intervals drawn from the regression models described in table 4, on page iv. Issues are sorted by the overall relationship between ideology and agreement.

both be corrected with reference to the same data. For each issue, subjects were randomly assigned to see a misstatement by either a Conservative or a Liberal. For example, in December 2015, Senator Ted Cruz said the following on the subject of immigration:

“[As President], I will enforce the law. That means you stop the Obama administration’s policy of releasing criminal illegal aliens. Do you know how many aliens Bill Clinton deported? 12 million. Do you know how many illegal aliens, George W. Bush deported? 10 million.”

In July 2015, Representative Luis Gutierrez said the following:

“[President Obama] said he will flex his executive muscle, to be as big and as bold as he can be, to reduce deportations of undocumented immigrants... to keep families together. I saw our champion.”

In the first instance, a Republican paints the president as weak on immigration enforcement; in the second, a Democrat paints the president as political ally of the immigrant community. Once again, on an issue-by-issue basis, some subjects randomly saw, or did not see, a correction. In this case, the correction read:

“In fact, according to the Department of Homeland Security, President Obama has deported illegal immigrants at twice the rate of his predecessor, President George W Bush.”

Then, all subjects were asked to agree or disagree with the following, again on a five-point scale: “President Obama has been more tolerant of illegal immigration than previous presidents.”

We repeated this structure with teen pregnancy rates, for which we featured misstatements by Representative Barbara Lee (a California Democrat), and Dr. Ben Carson (a GOP Presidential candidate); the bank bailouts, with misstatements by President Obama and Governor Sarah Palin; China and the U.S. debt, with statements by President Obama and Governor Romney (a GOP Presidential nominee); coming demographic changes to the United States, with misstatements by Senator Lindsey Graham and Eva Longoria (chairwoman of the 2012 Obama Campaign); gun violence in Chicago, with misstatements by President Obama and NRA Executive Director Wayne LaPierre; abortion, with misstatements by President Obama and Speaker Ryan; and drone warfare, with misstatements by President Obama and Senator Graham. Once again, all speakers’ partisan affiliations



were prominently displayed and the order of issues was randomized for each subject. (Consult table 5 on page x for the full text of the speakers' remarks, the corrections appended, and the wording of the agreement question.)

## 5.1 Study 2 Results

Subjects ( $n=2,801$ ) were recruited via Amazon's Mechanical Turk platform. We estimate the same group of models described in equation 1 to find that, regardless of subjects' ideology, and regardless of whether the correction corrected a Democratic or Republican-aligned speaker, the average subject exposed to the correction brought their views closer in line with the facts. Figure 2 presents the predicted effect of ideology, the correction, for all 8 issues and both speaker ideologies. As with figure 1, darker ribbons below the lighter ribbons indicate movement toward the facts. And once again, for no ideological group did we observe the correction leading to greater agreement with the speaker and thus deviation from the correction. Of course, subjects with different political leanings responded differently to the correction provided to them—within each correction type and issue, ribbons' steep gradients attest to these ideological effects. Unsurprisingly, respondents had residual reluctance to abandon co-ideologues and were generally eager to correct ideological opponents. Yet in no case did an ideological group respond to a co-ideologue being corrected by rejecting the correction. Furthermore, as discussed in section A.11 on page xxi, partisan affiliation also did not lead subjects to backfire.

## 6 Study 3

In the third study, our design simply extended that of Nyhan and Reifler (2010), and concealed factual corrections within fictitious original news articles. The articles were designed to mimic the design of an actual news article, with a visible dateline and headline. All subjects read eight articles, with each article containing an actual misstatement by politician. For each news article, some

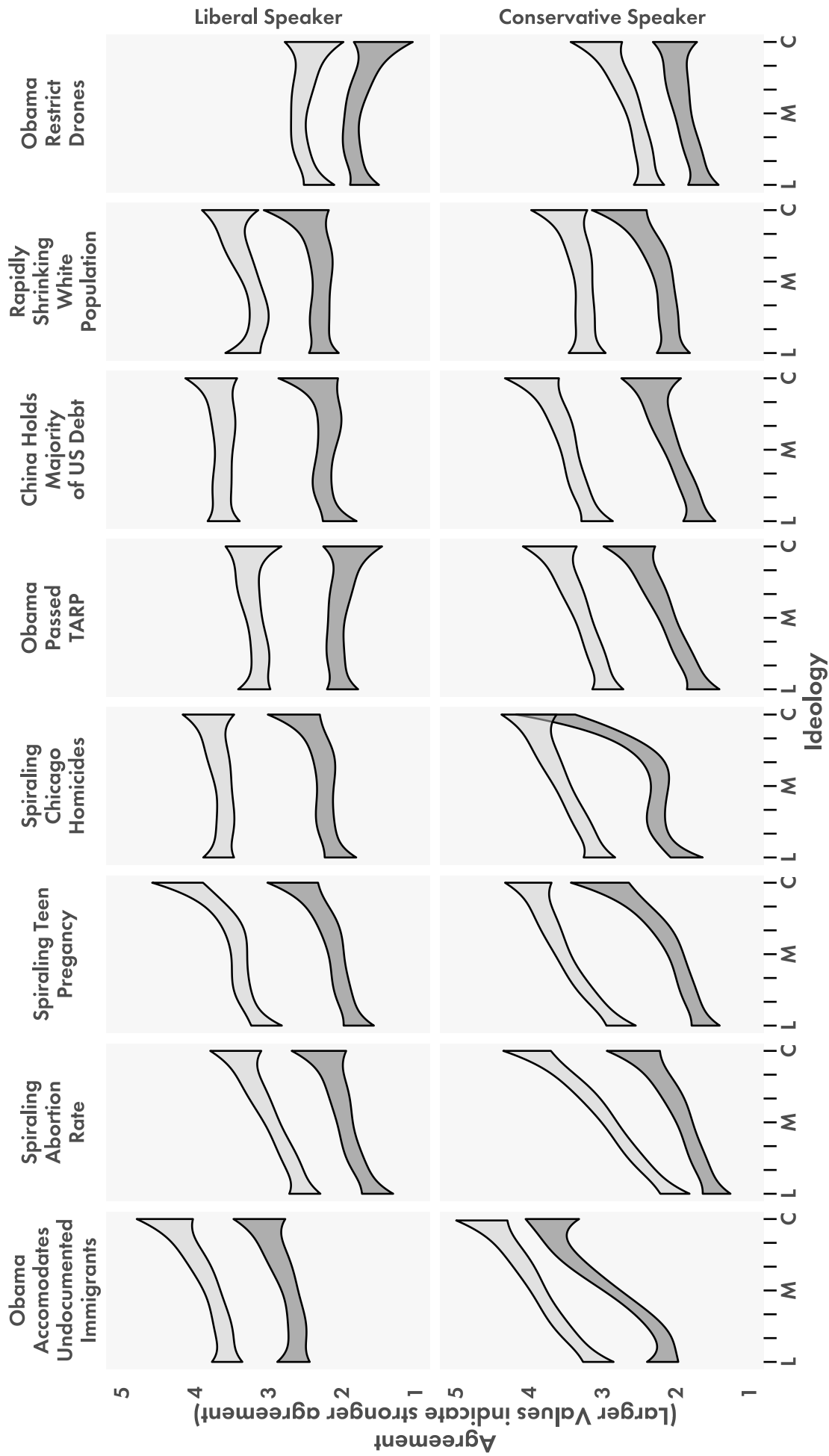


Figure 2: Study 2 correction effects. Curves are the conditional predictions and their 95% confidence intervals drawn from the regression models described in table 4, which is on page iv. Separate issues are included in columns, while speaker ideology is mapped to rows. Issues are sorted by the overall relationship between ideology and agreement.

subjects were randomly assigned to view a version of the article that contained a factual correction provided by a neutral government source. For example, all subjects read a news article about Speaker Ryan's views on abortion, in which this quote by Ryan is displayed:

“Ryan’s most cutting criticism, met with enthusiastic applause, was made of the President’s changed policy on abortion : ‘In the Clinton years, the stated goal was to make abortion ‘safe, legal and rare.’ Obama stands for an absolute, unqualified right to abortion—at any time, under any circumstances, and paid for by taxpayers.”

Subjects who saw the corrected version of the article then saw the following:

“Statistics from the Center for Disease Control tell a different story. The number of abortions steadily declined during President Obama’s first term, with fewer abortions in 2012 than any year since 1973.”

All subjects were then asked to agree or disagree with the information provided by the correction. We repeated this structure with articles about Senator Clinton’s comments on solar power; Senator Sanders’ on tax progressivity; and Donald Trump on immigration. For the issue of gun violence in Chicago, we assigned subjects to read articles with misstatements by either President Obama or NRA Executive Director Wayne LaPierre, with some seeing a correction with data from city government. All speakers’ partisan affiliations were prominently displayed and the order of issues was randomized for each subject. (Consult section A.5 on page xii for the full text of fictitious news articles and the wording of the agreement question.) Subjects in this study were also assigned to read the same news article about WMD in Iraq that Nyhan and Reifler (2010) use; we describe those results in sections 6.2 and 6.2.1.

## 6.1 Study 3 Results

Subjects (n=977) were recruited via Amazon’s Mechanical Turk platform. Correction effects were estimated with the same linear model depicted in equation 1. The predicted values for each model are depicted in figure 3. For every issue, the average subject who saw a newspaper article that contained a correction expressed less agreement with the factual inaccuracy,<sup>4</sup> all along the ideological

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<sup>4</sup> WMD’s discovery in Iraq did generate backfire with a particular survey item. This finding is discussed further in section 6.2 on page 20.

spectrum. On average, respondents were even willing to contradict co-ideologues, though these correction effects were smaller.<sup>5</sup> The effect of the correction observed in Study 3 was indeed smaller than the effects in the previous studies. This should not be surprising, as the correction itself was less conspicuous, since it was embedded in a longer body of text. In addition, conservatives were especially eager to reject liberal speakers, and conservatives were overall less responsive to corrections. Figure 3 demonstrates that the most conservative respondents were least responsive to corrections to conservatives (the top three facets) and were most responsive to corrections of liberals (the bottom three). Yet only the article about WMD in Iraq led subjects to reject the correction altogether—and when the survey item about WMD was worded differently, the backfire effect disappeared.

## 6.2 WMD Backfire and Question Wording Effects

All subjects in Study 3 were also presented with the same fictitious article about WMD in Iraq that Nyhan and Reifler (2010) used in their original study, with some subjects randomly shown the same correction that Nyhan and Reifler used. Like Nyhan and Reifler, we also tested for source effects, by randomly varying whether the article the subjects saw appeared to have been published in *The New York Times*, a reputedly liberal outlet, or *Fox News*, a supposedly conservative one. However, we departed from Nyhan and Reifler in one crucial respect. To test whether backfire can originate due to question-wording, we randomly varied whether subjects were asked to agree with Nyhan and Reifler’s original survey item, or a version we authored.

Nyhan and Reifler’s original survey item read:

Immediately before the U.S. invasion, Iraq had an active weapons of mass destruction program, the ability to produce these weapons, and large stockpiles of WMD, but Saddam Hussein was able to hide or destroy these weapons right before U.S. forces arrived.

Our alternative version of the item read:

Following the US invasion of Iraq in 2003, US forces did not find weapons of mass destruction.

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<sup>5</sup> This relationship persisted if we compare respondents along the partisan scale. This result is described in section A.11 on page xxi.

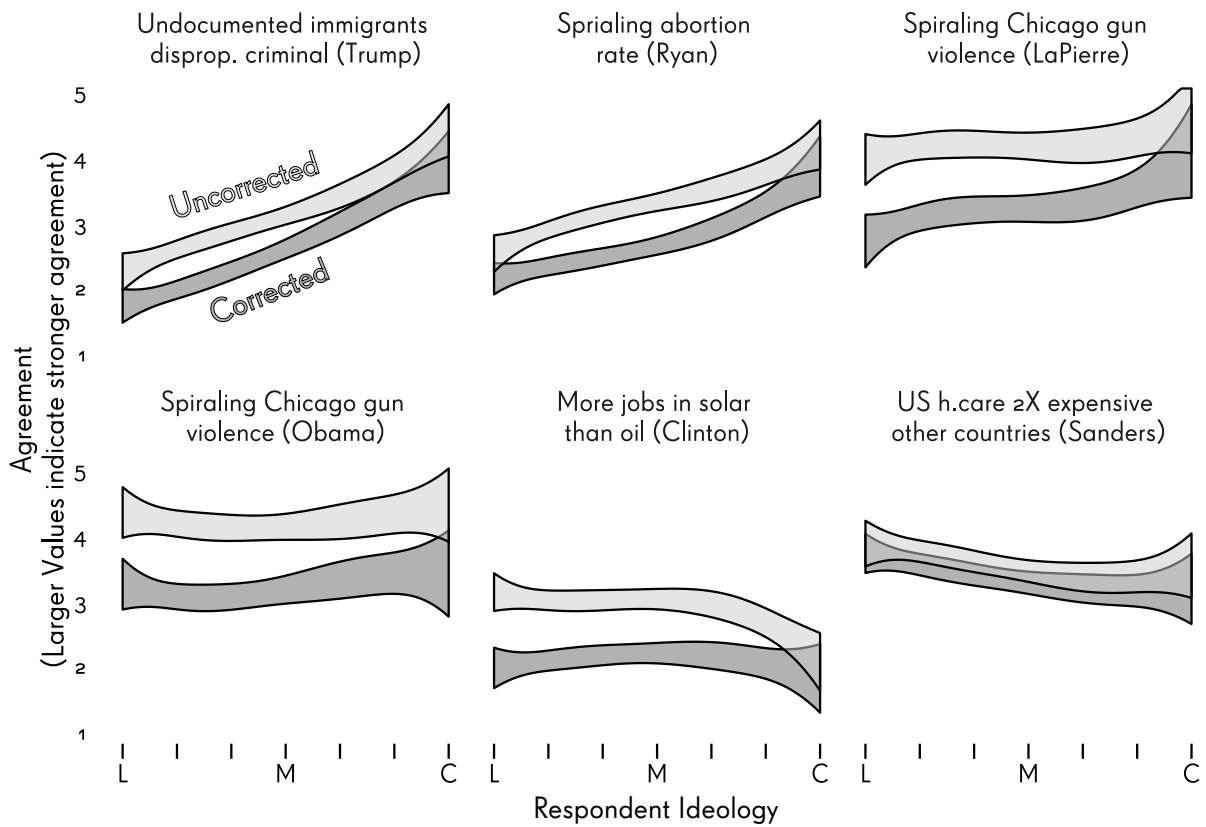


Figure 3: Study 3 correction effects. Curves are the conditional predictions and their 95% confidence intervals drawn from the regression models described in table 7 on page xvi.

The simpler item more directly taps respondents' factual understanding of the post invasion history, and does not offer parenthetical statements to measure attitudes about possible strategies Saddam Hussein might have employed to disperse or conceal WMD. The simpler version also more closely reflects the common interpretation of Nyhan and Reifler's finding. The average American voter is not expected to be familiar with the details of Iraq's prewar history. To adequately assess President Bush, and his undertaking to go to war to mitigate the threat posed by Iraqi WMD, citizens should be aware that no such weapons were found.<sup>6</sup> Our simpler item directly measures this factual understanding.

### 6.2.1 WMD Correction Results

The WMD survey item to which subjects were exposed strongly conditioned their level of factual backfire. Conservatives presented with Nyhan and Reifler's version rejected the empirical correction, becoming *more* convinced that Saddam Hussein had maintained a WMD program which the US did not find (replicating the original finding.) Yet conservatives presented with our survey item did not display backfire.

In figure 4, we plot the marginal effects of the correction, for both survey items. Respondent ideology appears on the x-axis. Effects above the red line indicate backfire—subjects rejecting the correction—while effects below the red line indicate uptake of the correction. Nyhan and Reifler's statement prompted conservatives to backfire while our version had no effect on them—they neither heeded nor backfired against the correction.

To understand why the two items yielded divergent effects, consider what distinguishes them. Both items relate to one overarching fact: despite the pledges of the Bush Administration, no WMD were found in Iraq. Our statements simply asks subjects to agree or disagree with this fact. In contrast, Nyhan and Reifler's item presents multiple ways to account for the failure to find WMD. Together, the facts convey a time line about Hussein's maintenance of his supposed WMD program

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<sup>6</sup> Of course, the attitudinal consequence of this fact remains at the respondent's discretion, but democratic competition requires that voters' adopt a basic set of shared facts.

Survey Item: Immediately before the U.S. invasion, Iraq had an active weapons of mass destruction program, the ability to produce these weapons, and large stockpiles of WMD, but Saddam Hussein was able to hide or destroy these weapons right before U.S. forces arrived.

Survey Item: Following the US invasion of Iraq in 2003, US forces did not find weapons of mass destruction.

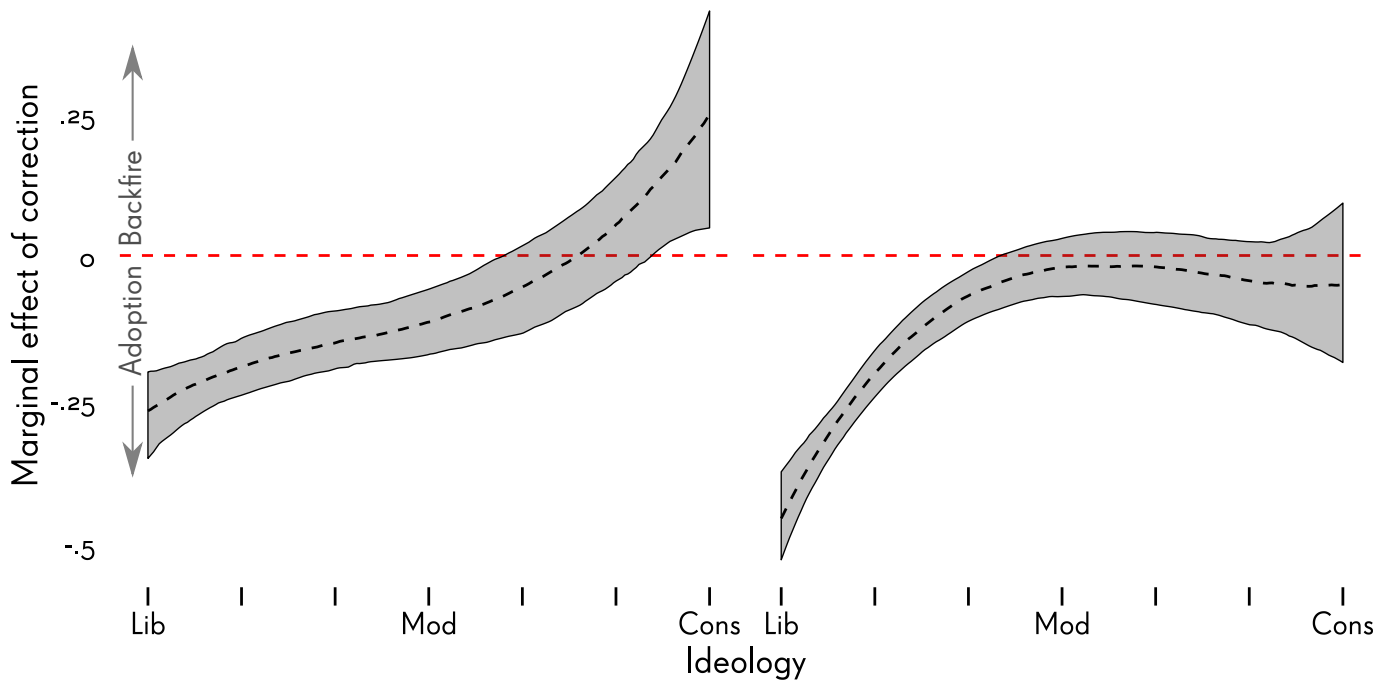


Figure 4: Ideology and factual backfire to WMD discovery, by survey item wording. Longer survey item is from Nyhan and Reifler (2010). Both groups were otherwise provided identical articles and corrections .

prior to the invasion of Iraq. A subject's understanding of WMD's absence in Iraq appears to have limited bearing on this item--instead, respondents may have interpreted the question as an invitation to appraise the war in general. What appears to be conservative factual backfire may instead be conservatives becoming more convinced that the Iraq War was justified.

More broadly, the sheer number of facts in the statement might have overwhelmed respondents, causing them to fall back with their ideological cohort, in which they had greater confidence. Imagine a conservative subject who understands that no WMD were found, but has no beliefs about the other facts that Nyhan and Reifler's item conveys. When presented with the WMD correction (and its implied criticism of her co-ideologue President) she might be pushed to adopt a *policy* position she believes is ideologically consistent. Such a subject would not be rejecting a factual correction, inasmuch as she would be preferring the certainty of co-ideologues over the ambiguity of her factual beliefs in Nyhan and Reifler's survey item.

## 7 Study 4

Might the complexity of survey items account for much of the incidence of factual backfire? That is: when posed a question which directly tests a their factual understanding, respondents might privilege available facts. When posed a more convoluted item, respondents might weigh facts against their ideological priorities. This pattern would both account for previous findings and illuminate the role of factual interventions in conditioning attitudes.

To test this possibility, 1,333 respondents were recruited from Mechanical Turk, and shown 6 mock newspaper articles,<sup>7</sup> with our usual practice of randomizing article order and corrections.

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<sup>7</sup> Three articles were taken from study 3: the original Bush WMD article, the piece by Speaker Paul Ryan criticizing President Obama's policy toward abortion, and Secretary Hillary Clinton claim that twice as many Americans were employed in solar than in the oil industry. Three novel mock articles were also provided: Senator Sanders claiming that the EPA had found fracking was responsible for polluting water supplies, Donald Trump claiming that his tax cut plan would grow federal tax receipts, and Trump claiming



Using Nyhan and Reifler’s original WMD item as a model, we wrote comparably complex items for the other issues, along with moderate and simple versions. Each respondent saw one item per issue. To test the effect of item complexity, we used four issues by conservatives, and two by liberals, including a tax claim by Donald Trump that was comparable to the those which generated backfire in the original Nyhan and Reifer piece.

Table 9 (found in the appendix, on page xx) describes all 18 items. For instance, to measure agreement with Donald Trump’s claim that the real unemployment rate was greater than 30%, the three items were:

**Simple:** The true unemployment rate is greater than 30%.

**Moderate:** After removing the effects of politicians interfering with the data, the true unemployment rate is greater than 30%.

**Complex:** The unemployment rate has important political ramifications, and government statisticians are susceptible to threats and influence. After removing the effects of politicians interfering with the data, the true unemployment rate is greater than 30%.

Using Nyhan and Reifler’s original WMD item as a model, a more complicated survey items offered preambulatory explanations for the fact which comprised the question’s substance. Moderate items provide fewer explanations.

## 7.1 Study 4 Results

Figure 5 shows the marginal effects of each correction, with different issues mapped to the column facets, and survey item complexity mapped to the row facets. Ribbons above the dashed horizontal indicate factual backfire. Among the eighteen item  $\times$  complexity combinations, only one generated backfire—the factual correction of WMD when measured using a complex survey item. The tax cut that the true unemployment rate was actually higher than 30%. These mock articles can be read in section A.8, which can be found in the appendix on page xv. The items can be read in table 9 on page xx.

cost issue, which generated backfire with a simple item for Nyhan and Reifler, was not replicated, with all three complexity types providing similar factual adherence.

These items provide what should be an even easier test for backfire, by loading measures of factual attitudes with preambulatory clauses that should crowd out the correction's influence. Complicated items also seem prone to induce factual counter-arguing by listing separate ways to account for some outcome. This study also tested two items from Donald Trump, a candidate whose rejection of fact checkers and the judgment of the national political establishment is central to his appeal. Yet when Trump alleges a complicated political conspiracy to hide the true extent of unemployment, a correction which cites the very federal agency implicated by Trump (the Bureau of Labor Statistics) is accepted by our subjects. The influence of facts even in these circumstance invites us to imagine the exceptional circumstances needed to engender factual backfire.

## 8 Robustness Checks

### 8.1 Post-Stratification

The demographic composition of the MTurk population does not mirror America. To participate in an online labor market, an individual must have a reliable internet connection and ample free-time. Accordingly, MTurk samples tend to be whiter, younger, less affluent, and less religious than the population at large (Berinsky, Huber, and Lenz, 2012, Huff and Tingley 2015). Despite this, MTurk respondents have been shown to be largely indistinguishable from co-ideologues in recruited online panels (Clifford, Jewel, and Waggoner 2015), and that simply controlling for demographic characteristics makes the attitudinal distribution of an MTurk sample appear very similar to a national face to face survey (Levay, Freese, and Druckman 2016).<sup>8</sup>

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<sup>8</sup> If face to face probability samples comprise the “gold standard” of survey research, it's increasingly apparent that the undergraduate convenience sample is the worst method for making inferences about mass political correlates (Heinrich, Heine and Norenzayan, 2010). Across a slew of important measures for political attitudes—racial resentment, ideological constraint, attentiveness to political news—undergraduates are

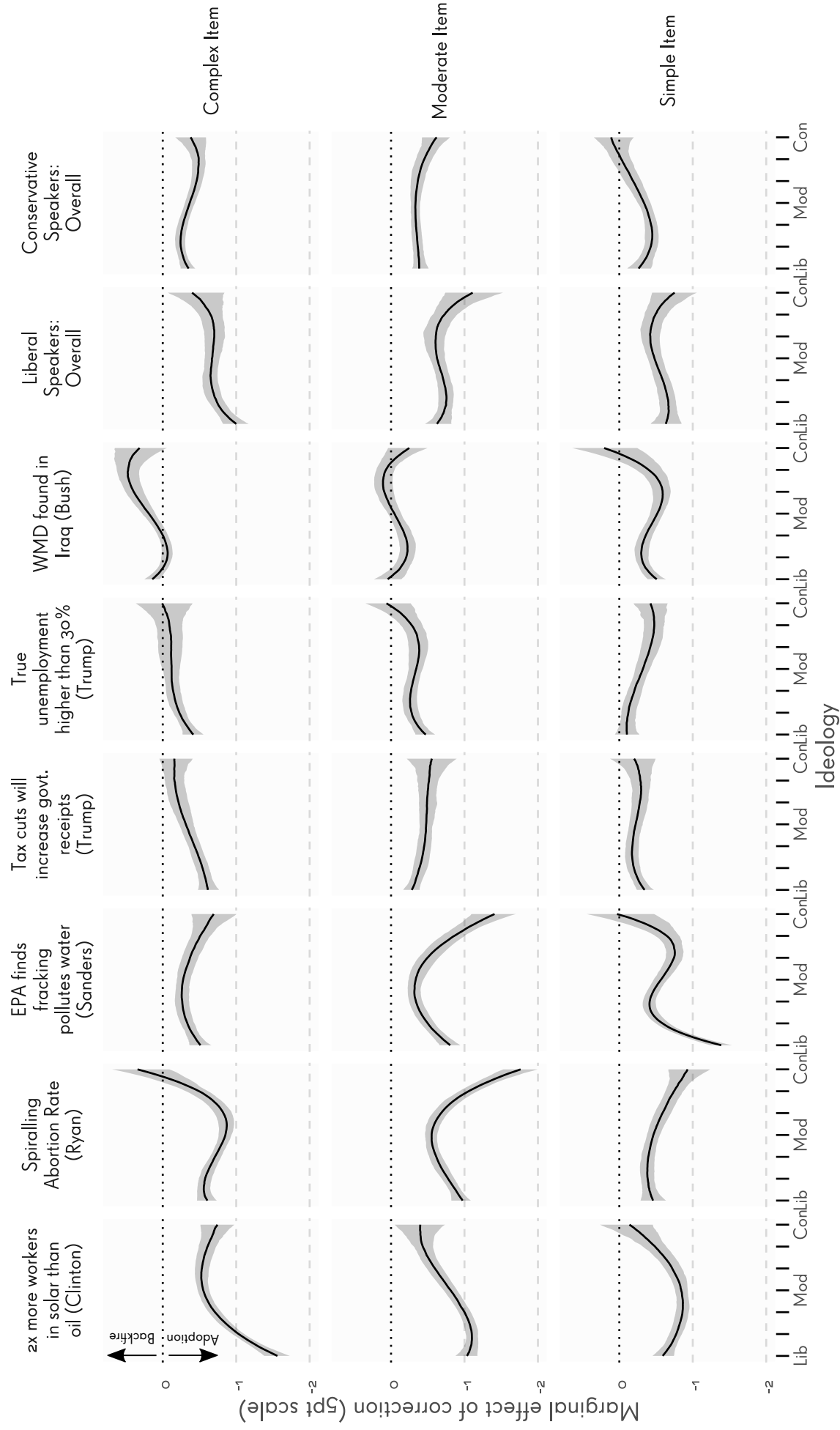


Figure 5: Study 4's test the effect of survey item complexity and factual backfire. Ribbons show estimated marginal effects and their 95% confidence interval from the linear models in table 8, on page xvii. The rightmost two columns aggregate corrections according to the ideology of the speakers. All survey items can be read in table 9, on page xx. Areas entirely above the dashed origin indicate factual backfire.

Since weighting on observed demographics has been demonstrated to improve the representativeness of the MTurk attitudinal distributions, we used rake weights to determine if making the sample more representative would affect correction sizes. If the young MTurk sample is more receptive of new political information, or if the heightened education of this group made them more ideologically constrained and hence inclined to resist new political information, making the sample more representative provides a better indication of how a national probability sample might respond to factual corrections. Using population estimates from the US Census, Pew Foundation, and the American National Election studies, weights allowed us to compare mean differences according to corrections and ideological cohorts, to *weighted* mean differences conditional on the same covariates.<sup>9</sup> For all issues and studies, these mean differences are plotted in figure 6. The pre and post weighted distributions are in table 10 in the appendix, on page xxiii .

This figure depicts the correction among the MTurk sample with a hollow point, and the mean difference among the sample weighed to appear like the US population with a solid point. Across the 36 corrections, post stratification generally makes a negligible difference to a correction effect's categorically dissimilar to other Americans. This compounds the difficulty in using these findings to understand political behavior, since so many foundational papers (Nyhan and Reifler (2010) among them) used undergraduate samples or samples of comparably aged subjects.

<sup>9</sup> More formally, the unweighted correction effect for issue  $i$  ( $c_i$ ) was estimated as follows:

$$c_i = \frac{\sum_{j=1}^m I_{sc}(j)y_j}{\sum_{j=1}^m I_{sc}(j)} - \frac{\sum_{j=1}^m I_{su}(j)y_j}{\sum_{j=1}^m I_{su}(j)}$$

where  $i$  indexes issues, and  $j$  indexes respondents, so that and  $I$  indicates which correction\*ideology sub-population a respondent falls into—so  $I_{sc}$  is an indicator that the respondent saw a correction, and  $I_{uc}$  indicates they didn't see a correction. The weighted correction effect ( $c^*$ ) were computed as follows

$$c_i^* = \frac{\sum_{j=1}^m I_{sc}(j)y_j w_j}{\sum_{j=1}^m I_{sc}(j)w_j} - \frac{\sum_{j=1}^m I_{su}(j)y_j w_j}{\sum_{j=1}^m I_{su}(j)w_j}$$

where notation is as above, except  $w_j$  is the post stratification weight for the  $j$ th respondent.

magnitude. Large differences in correction effects are attributable to certain issues—for instance, corrected attitudes on teen pregnancy, gun violence, and China’s ownership of US debt were more than 1.5 points lower than uncorrected attitudes, while other issues had correction effects a third as big. Compared to this variance, weighting differences are generally smaller than two tenths of a point. Similarly, neither unweighted nor weighted corrections are smaller or larger overall. This suggests that the MTurk estimates of the correction effects are close to what would be observed in a national sample.

## 8.2 Did Exposure to Corrections Affect Ideological and Partisan Self-Identification?

Our survey design for all three studies presented subjects with either a corrected or uncorrected version of an issue, with the issue of orders randomized. Some tiny number of respondents saw only uncorrected or corrected issues; others saw extended sequences of a single issue type. To check against an inadvertent relationship between the sequence and count of corrections a respondent saw, and survey respondents’ other characteristics, we performed two separate tests for categorical and continuous covariates. These results are reported in table 2.

The rows in table 2 are organized in two groups—the first four rows report associations between survey design and respondents’ categorical covariates (measured with Cramer’s V effect size estimate), while the next four report association with continuous covariates (measured with a Pearson correlation coefficient). The columns are organized in three groups, according to three different measures of a respondent’s pattern of correction exposure. The first column group indicates the count of total corrections to which a respondent was exposed, the second, the longest unbroken sequence of corrections a respondent saw, and the third, the count of sequences of corrections two or longer. Each statistic is reported separately by study wave.

The tiny effects in table 2 demonstrate two things. First, the randomization of corrections and issue order succeeded. Second, there was no apparent effect running from the pattern of correction exposure to respondents’ characteristics—that is, the number of corrections a respondent saw did not move them along the ideological or partisan spectrum, or cause them to report different

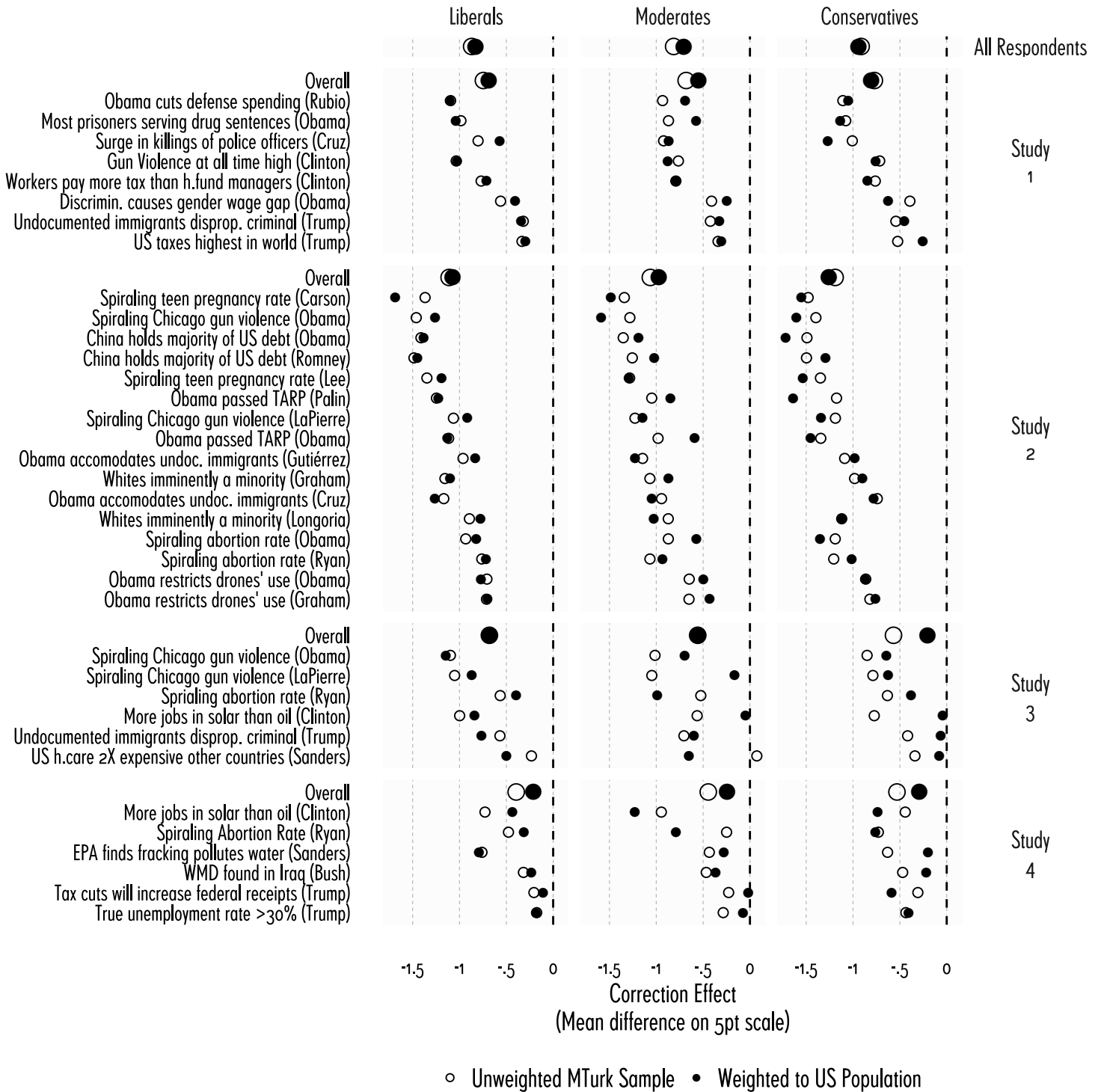


Figure 6: Effect of post stratification on correction effects. Issues are listed in the y axis, with the respective speaker in parentheses. Hollow points indicate the size of the correction among the MTurk sample. Solid points indicate the size of the correction after weighting for US population margins in race, income, education, religion, ideology, partisanship, age, and gender. Larger points average over separate items. The pre and post weighted distributions of these variables is provided in table xxiii on page 10.

	Study:	Total Corrections (count)				Maximum sequence of corrections length				Corrections sequences two or longer (count)			
		1	2	3	4	1	2	3	4	1	2	3	4
Categorical	Education	.065	.049	.092	.034	.057	.05	.069	.012	.017	.029	.062	.074
	Employment	.047	.045	.068	.061	.048	.049	.067	.076	.027	.038	.064	.023
	Gender	.059	.042	.073	.093	.062	.028	.065	.076	.05	.034	.054	.019
	Race	.05	.053	.081	.049	.043	.036	.069	.031	.031	.029	.038	.059
Continuous	Age	.025	0	-.015	.012	-.003	.023	.019	-.012	-.024	.02	.003	-.034
	Ideology	.014	-.027	-.045	.032	-.022	.006	.022	-.067	-.012	-.005	.032	-.077
	Income	-.011	.014	.026	.087	.006	.008	.028	.026	-.034	-.023	.039	-.023
	Patisanship	-.018	.027	.017	.019	.006	-.016	-.032	.088	.002	.005	-.03	.012

Table 2: Tests of covariate balance. Columns report different measures of correction exposure—in order: the count of total corrections a respondent saw, the longest unbroken sequence of corrections, and the count of correction sequences two or longer, for all three studies. The first four rows report tests with categorical covariates: these cells reports the Cramer’s V effect size estimate. The second four rows report tests with continuous covariates: these cells reports the Pearson correlation coefficient.

characteristics.

### 8.3 Did the experimental design reduce the efficiency of our model estimates?

In each of our studies, respondents saw a sequence of issues, uncorrected or corrected on a random basis, and in a random order. While the results in table 2 demonstrated that experimental design was not related to respondents’ characteristics, it remains possible that design factors inadvertently conditioned factual agreement to the tested issues. This would be a classic case of a “demand characteristic”—where subjects’ awareness of an experiment’s purpose affects their otherwise ingenuous responses. Respondents who had been exposed to a long sequence of corrections might become conditioned to be more accepting of factual correction. Conversely, a respondent might resent the provision of corrections and the resultant ideological confusion—as the number of successive corrections accrue, such a respondent might rest increasingly on their ideological priors in answering attitudes. Because we randomize the order of issues to which subjects are exposed,

neither potential effect (whether it increased or decreased the average correction effect) would bias our overall results, but they would introduce heterogeneity which would decrease our estimates' precision.

To test this possibility, we estimated two classes of linear models, wherein agreement to each issue was made a function of two survey quantities—the order in which a respondent was exposed to a particular issue, and the cumulative sum of corrections a respondent observed prior to a question, with interactions between ideology and correction status. More formally, the models were:

$$\begin{aligned}
 \text{Agreement}_i = & b_0 + b_1(\text{Survey Quantity}_j) + & (2) \\
 & b_2(\text{Ideology}) + b_3(\text{Correction}) + \\
 & b_4(\text{Ideology} \times \text{Survey Quantity}_j) + b_5(\text{Correction} \times \text{Survey Quantity}_j) + \\
 & b_6(\text{Correction} \times \text{Ideology}) + b_7(\text{Correction} \times \text{Ideology} \times \text{Survey Quantity}_j)
 \end{aligned}$$

Where  $i$  indexes issues, and  $j$  indexes survey quantities: the order in which an item was exposed (measured by the rank) and the number of corrections exposed prior to an item (measured with a count). To simplify this analysis, in figure 7, we provide a parallel coordinates plot with all the coefficients that pertain to the survey quantities—so, terms  $b_1$ ,  $b_4$ ,  $b_5$ , and  $b_7$ , from the equation above.

Figure 7 shows that neither the order in which an issue was vended, nor the count of prior corrections a respondent saw, affected issue agreement, either directly or via an interaction. If subjects had experienced significant demand characteristics, figure 7 would show that experimental characteristics were having a significant effect on these coefficients, across many issues. Instead, 222 of the 240 coefficients tested were insignificant. Second, those few variables which did feature some small number of significant coefficients (for instance, the  $b_4$  term in the bottom facet) tended to have diametric effects—sometimes previous corrections increased correction effects, other times it shrunk them. Finally, the only issue that feature four significant terms (President Obama implying that



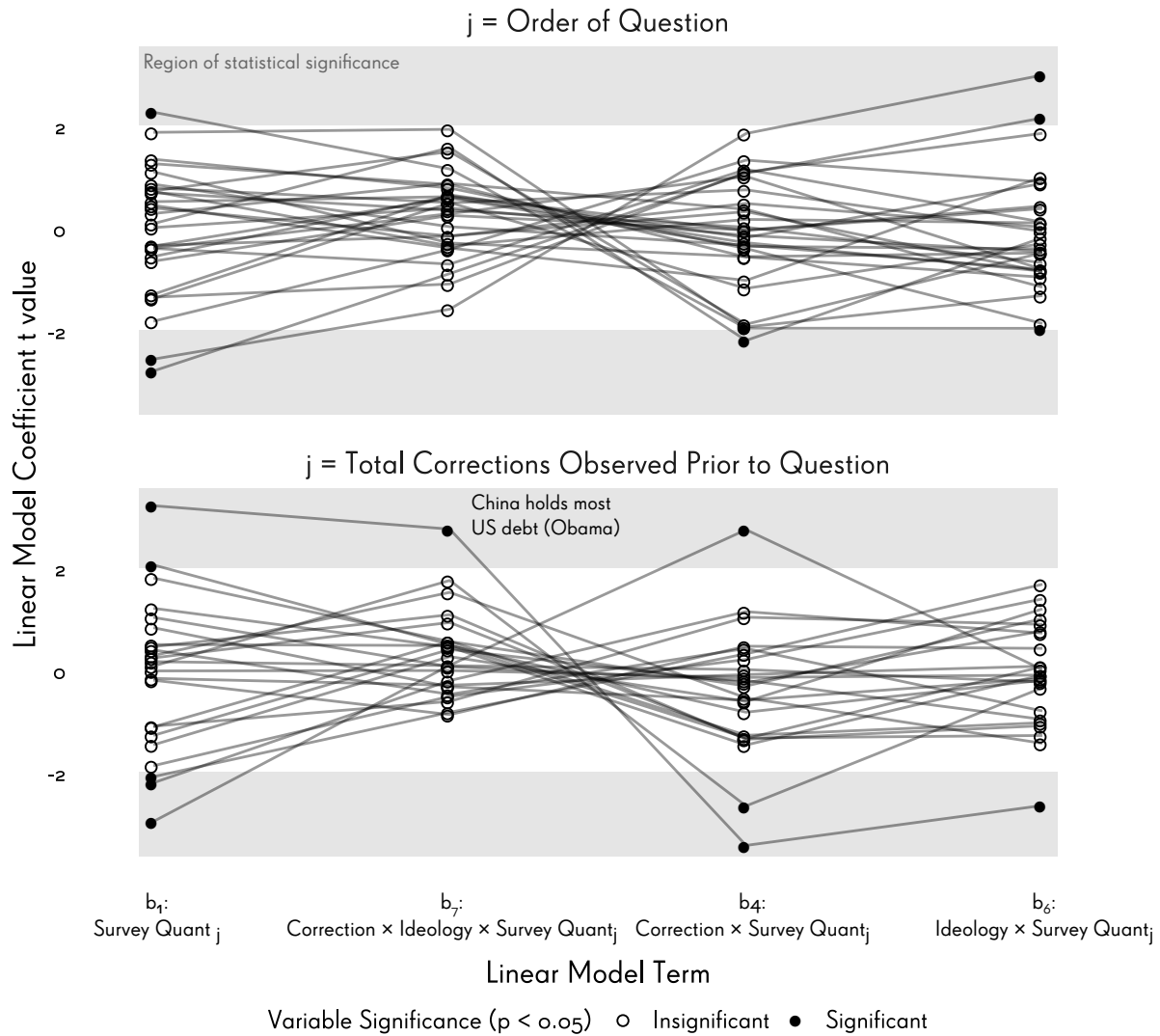


Figure 7: Parallel coordinates plot showing relationship between survey design and factual agreement. Each line is a separate linear model, estimating agreement as a function of the term indicated on the x-axis. Hollow points indicate insignificant coefficients, solid points indicate significant coefficients. The top top facet reports effect of question order, bottom facet reports effects of previous corrections observed. Shaded areas are regions of coefficient significance. These results demonstrate that experimental design factors did not systematically influence respondents.

China holds the bulk of US debt) was paired, and its conservative speaking counterpart issue saw no such significant effects.

## 9 Discussion

If citizens were to systematically reject empirical facts that conflicted with their ideological and partisan sympathies, the possibility of democratic accountability would be imperiled. We find, however, that backfire appears to be largely a function of question wording, not a characteristic of the general public's relationship to factual information. Across four experiments in which we enrolled more than 8,100 subjects and tested 36 issues of potential backfire, we observed backfire only in response to a correction about WMD in Iraq; an issue on which Nyhan and Reifler (2010) originally observed backfire. Even this instance of backfire disappeared when we simplified the wording of the survey item. Across all the potential backfire we studied, figure 8 depicts the mean correction size, averaging across separate issues, by respondent ideology and speaker ideology. Overwhelmingly, when presented with factual information that corrects politicians—even when the politician in question is an ally—subjects responded by agreeing with the correction and distancing themselves from the corrected politician.

Our findings are consistent with one of the most well-documented aspects of mass public opinion: respondents shy away from cognitive effort, and will deploy shrewd strategies to avoid it (Lippmann, 1922). In contrast, the backfire hypothesis proposes that a subject, when furnished facts inconsistent with her ideological commitments, will resolve the challenge of these facts by concocting new considerations to offset the threatening information. As Nyhan and Reifler (2010) describe it, backfire may be the “possible result of the process by which people counter-argue preference-incongruent information and bolster their preexisting views.” Developing counter-arguments would be unusually effortful, as sophisticated respondents can simply filter out, rather than counterargue, unwelcome facts (Zaller, 1992). If indeed subjects who backfire are counter-arguing, it is worth recalling that many of the samples that have identified backfire were gathered in university settings.



Social psychologists have long known that students and faculty take unusual pleasure in cognitive effort (Petty, Cacciopo, Morris 1983). For this reason, undergraduates or college-aged respondents may simply be more prone to displaying backfire than the broader population.

Other findings that paint citizens as alarmingly ill-equipped for democracy have suffered from similar sample selection issues. For example, by one accounting, voters factors in local sports scores when deciding to reelect an incumbent (Healy, Malhotra and Mo 2010). More recent research, however, has challenged this finding, suggesting that the purported connection may actually be a false positive (Fowler and Montagnes 2016). Research that claims to show widespread democratic incompetence may mistake the snapshot that any one study represents for the sum total of citizens' abilities.

Our findings are not without their own limits. That voters do not reject the facts presented to them does not mean that they have retained the information that the corrections convey. The facts we have provided subjects may quickly become inaccessible to them. Yet they do not reflexively reject that information—and plainly, they do not go to the effort of compounding inaccurate beliefs, as the backfire hypothesis would predict. At least for a brief moment, their perceptual screens dim, and the facts prevail.

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# A Appendix (Online Only)

## A.1 Study 1 Misstatements, Corrections, and Survey Items

Misstatement	Correction	Survey Item
<p>“Between 88 and 92 people a day are killed by guns in America. It’s the leading cause of death for young black men, the second leading cause for young Hispanic men, the fourth leading cause for young white men. This epidemic of gun violence knows no boundaries, knows no limits, of any kind.” Secretary Hillary Clinton (D) ”<i>Town Hall Meeting</i>”, Manchester NH, October 5, 2015</p>	<p>In fact, according to the FBI, the number of gun homicides has fallen since the mid 1990s, declining by about 50% between 1994 and 2013.</p>	<p>The number of gun homicides is currently at an all time high</p>
<p>”In 1980, there were 500,000 people behind bars in America. Today there are 2.2 million. Over the last few decades, we’ve also locked up more and more nonviolent drug offenders than ever before, for longer than ever before. And that is the real reason our prison population is so high.” President Barack Obama (D) ”<i>Remarks at the NAACP Conference</i>”, Philadelphia, PA, July 14, 2015</p>	<p>In fact, according to the Federal Bureau of Justice Statistics, only 20% of prisoners in the US committed a nonviolent drug offense. Over half of all prisoners were convicted of violent crimes.</p>	<p>Drug convictions are the main cause of the high prison population.</p>
<p>”We need to get back into the habit of actually rewarding workers with increases in their paychecks... Warren Buffett has said it, but so have a lot of other people. There’s something wrong when hedge fund managers make more, and pay less in taxes, than nurses or truck drivers.” Secretary Hillary Clinton (D) ”<i>Remarks on Small Business</i>”, Cedar Rapids, IA, May 19, 2015</p>	<p>In fact, according to the Bureau of Labor Statistics, the average hedge fund manager pays about 20 times as much income tax as the average truck driver or nurse.</p>	<p>Nurses and truck drivers pay more in taxes than hedge fund managers.</p>

## Misstatement

“Today, women make up about half our workforce. But they still make 77 cents for every dollar a man earns. That is wrong, and in 2014, it’s an embarrassment. A woman deserves equal pay for equal work... It’s time to do away with workplace policies that belong in a “Mad Men” episode.”  
President Barack Obama (D) ”*2014 State of the Union Address*”, Washington, DC, January 28, 2014

“Defense spending has fallen dramatically on President Obama’s watch, and our forces have been reduced and suffered readiness challenges even as threats abroad increase. Our military therefore needs a serious program of reinvestment and modernization.”  
Senator Marco Rubio (R-FL) ”*Campaign Rally: My Plan to Restore American Strength*”, Manchester NH, November 5 2015

”When Mexico sends its people, they’re not sending their best. They’re sending people that have lots of problems, and they’re bringing those problems to us. They’re bringing drugs. They’re bringing crime. They’re rapists.”  
Donald Trump (R-NY) ”*Campaign Launch*”, New York, NY, June 16, 2015

## Correction

In fact, a report for the Department of Labor found that the Wage Gap claim does not take into account differences in occupation, position, education, job tenure or hours worked per week. After adjusting for these factors, women earn 95 cents for every dollar men earn.

In fact, according to the Defense Department, defense spending under President Obama is higher than it was under President George W. Bush.

In fact, according to the Congressional Research Service, undocumented/illegal immigrants commit crimes at a lower rate than the general population.

## Survey Item

Women are paid less than men for the same work, mainly because of discrimination

Defense spending under President Barack Obama is lower than it was under President Bush.

Undocumented/illegal immigrants commit crimes at a higher rate than most Americans.

Misstatement	Correction	Survey Item
<p>”The number of law enforcement officers killed as a result of violence has been on a precipitous upswing. If the police are intimidated, if they are scared, if they are not willing to do their jobs, we know the result. The result is the loss of life. The result is rising crime.”            Sen Ted Cruz (R-TX), “<i>US Senate Judiciary Subcommittee Hearing: The War on Police—How the Federal Government Undermines State and Local Law Enforcement.</i>” Washington DC, Tuesday November 17, 2015.</p>	<p>In fact, according to public records, homicides of law enforcement officers have been declining for decades. Fewer police officers were killed in 2015 than any year since the 1890s.</p>	<p>The number of police officers killed in the line of duty is rising fast.</p>
<p>”Our taxes—we just put in a plan the other day—we’re going to reduce taxes tremendously because we have the highest tax rate anywhere in the world and our middle class is being absolutely destroyed.”            Donald Trump(R-NY), “<i>Presidential Campaign Rally</i>” Richmond,VA, Wednesday October 14, 2015.</p>	<p>In fact, according to the Organization for Economic Cooperation and Development, taxes account for only about 25% of the US economy—the second smallest share among all advanced nations.</p>	<p>U.S. tax rates are the highest in the world.</p>

Table 3: Study 1 Misstatements, Corrections, and Survey Items

## A.2 Study 1 Linear Model Coefficients

	Discrim. sole cause gender wage gap (Obama)	Gun Violence at all time high (Clinton)	Most prisoners serving drug sentences (Obama)	Obama cuts defense spending (Rubio)	Surge in killings of police officers (Cruz)	Undoc. immi- grants disprop. criminal (Trump)	US taxes highest in world (Trump)	Workers pay more tax than hedge fund managers (Clinton)
Intercept	3.5** 0.03	3.2** 0.03	3.9** 0.03	3.3** 0.03	3.0** 0.03	2.5** 0.03	2.7** 0.03	3.4** 0.03
Correction	-0.5** 0.04	-0.9** 0.04	-1.0** 0.04	-1.1** 0.04	-0.9** 0.04	-0.4** 0.04	-0.4** 0.04	-0.8** 0.04
Ideology	-27.8** 1.65	-18.7** 1.63	-16.3** 1.47	15.0** 1.51	24.3** 1.47	34.3** 1.49	23.3** 1.70	-15.5** 1.61
Ideology <sup>2</sup>	0.0 1.64	-0.6 1.62	-1.9 1.45	4.8* 1.53	-1.7* 1.46	3.0* 1.49	-3.6* 1.75	-1.1 1.62
Ideology <sup>3</sup>	0.8 1.63	1.9 1.62	-2.0 1.45	1.9 1.53	1.8 1.46	0.2 1.48	2.5* 1.74	0.6 1.61
Correction × Ideology	4.1* 2.35	9.7** 2.30	0.4 2.06	-0.2 2.14	-5.7* 2.11	-5.5* 2.11	-5.1* 2.37	0.3 2.26
Correction × Ideology <sup>2</sup>	-1.1 2.35	-3.5* 2.30	-2.1 2.06	-2.9 2.14	-0.5 2.11	-0.8 2.11	0.0 2.38	0.2 2.26
Correction × Ideology <sup>3</sup>	-0.9 2.35	-1.3 2.30	2.8 2.06	-2.6 2.14	-2.6 2.11	0.3 2.11	-2.4 2.38	-1.1 2.26
n	3124	3124	3125	3125	3125	3125	3124	3126
Adj. R <sup>2</sup>	0.16	0.17	0.24	0.24	0.24	0.25	0.11	0.15
AIC	9863	9748	9062	9295	9194	9200	9927	9631

\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001,

Table 4: Study 1 Linear Model Coefficients. Cell entries are beta coefficients with their standard error below. These models provide the predicted values in figure 1, on page 15.

### A.3 Study 2 Misstatements (paired by partisanship), Corrections, and Survey Items

Misstatement	Correction	Survey Item
Bipartisan Misconception 1: <i>President Obama passed TARP</i>		
<p>”Barack Obama is owned by Wall Street. The fat cats, as he calls them, they’re his friends. They’re his pals. That’s where he gets his campaign donations. And he’s very generous about giving these cats their cat nip — bigger returns on their investments in bailouts.” Gov Sarah Palin (R), <i>”Speech to GOP Donors”</i>, Lake Buena Vista, November 4, 2011.</p> <p>“We got back every dime we used to rescue the financial system, but we also passed a historic law to end taxpayer-funded Wall Street bailouts for good.” President Barack Obama (D), <i>”Remarks by The President at a Campaign Even in Miami, FL”</i>, October 11, 2012</p>	<p>In fact, the Wall Street bailout (known as TARP) was signed into law by President George W. Bush in October 2008, before President Obama took office. While in office, President Obama oversaw the program’s partial implementation.</p>	<p>President Obama signed the Wall Street bailouts into law.</p>

#### Bipartisan Misconception 2: *President Obama accommodates illegal/undocumented immigrants*

<p>“[As President] I will enforce the law. That means you stop the Obama administration’s policy of releasing criminal illegal aliens. Do you know how many aliens Bill Clinton deported? 12 million. Do you know how many illegal aliens, George W. Bush deported? 10 million.” Senator Ted Cruz (R-TX), <i>”CNN/Salem Radio GOP Presidential Candidate Debate”</i>, Las Vegas NV, December 15, 2015.</p>	<p>In fact, according to the Department of Homeland Security, President Obama has deported illegal immigrants at twice the rate of his predecessor, President George W. Bush.</p>	<p>President Obama has been more tolerant of illegal immigration than previous Presidents.</p>
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## Misstatement

## Correction

## Survey Item

“[President Obama] said he will flex his executive muscle, to be as big and as bold as he can be, to reduce deportations of undocumented immigrants, to keep families together. Today, I saw our champion.” Representative Luis Gutierrez (D-IL), “Rep Gutierrez: Statement After Meeting With President Obama on Immigration”, Washington, DC, July 16, 2014.

### Bipartisan Misconception 3: *Teen pregnancy rate is spiraling*

“In the black community, I think we have to be honest with ourselves. With what’s going on in Chicago and Detroit and New Orleans and Washington, D.C, where just tons of shootings, murder, violence, all the time, where we have tons of teenage pregnancy. Women giving birth, it ends their education. It send their children into poverty. It continues the cycle of poverty and dependence.” Dr Ben Carson (R-TN), “*The Sean Hannity Show*”, November 14, 2014.

In fact, according to the Center for Disease Control, the pregnancy rate among black teenagers declined by 66% between 1991 and 2013. Among white teenagers it has fallen by 50% during that period.

The pregnancy rate among black teenagers has increased over the last thirty years.

## Misstatement

## Correction

## Survey Item

“Comprehensive sex education programs are successful at reducing behaviors that put young people at risk. These programs also reduce unintended pregnancy and the transmissions of STIs, including HIV. The United States still has the highest teen pregnancy rate in the industrialized world, and recent reports have shown that teen birth rates are on the rise.”

Rep Barbara Lee (D-CA), “Congresswoman Barbara Lee and Senator Frank Lautenberg Introduce Bill to Expand Comprehensive Sex Education”, February 21, 2013, Washington DC

### Bipartisan Misconception 4: *China holds the majority of US sovereign debt*

“I’m going to look at every federal program and I’ll ask this question: “Is a program so critical it’s worth borrowing money from China to pay for it?” And if it doesn’t pass that test, I’m going to eliminate that program.”

Gov Mitt Romney (R-MA), “Romney’s Litmus Test for federal programs: is it worth a Chinese loan?” *Foreign Policy*, September 24, 2012.

“The way [President George W. Bush] has done it over the last eight years is to take out a credit card from the Bank of China in the name of our children, driving up our national debt from \$5 trillion... so that now we have over \$9 trillion. That’s irresponsible. That’s unpatriotic.”

then Senator Barack Obama (D-IL), “*Campaign Rally*”, Fargo, ND July 3, 2008.

In fact, according to the Treasury Department, China owns less than 12% of all US Debt. The majority is held by American banks and investors

Most US debt is owned by China.

## Misstatement

## Correction

## Survey Item

### Bipartisan Misconception 5: *Whites will imminently be a racial minority in the US*

”[The Republican Party] is losing the demographics race badly. We’re not generating enough angry white guys to stay in business for the long term.”

Senator Lindsey Graham (R-SC), quoted in *The Washington Post*, August 29, 2012

“This might be the last Presidential election during which Texas is not considered a swing state. The sleeping giant of the Texas Latino vote is poised to awaken and alter the fate of every future election.”

Eva Longoria (D–Chairwoman of President Barack Obama’s reelection campaign)

”Sleeping Giant: Texas Latino Vote”, *Politico*, October 31, 2012.

In fact, according to the US Census Bureau, Whites will remain the majority in the US until at least 2045.

Whites still comprise 75% of the US federal electorate.

In the next few years, whites will make up less than half of the US population.

### Bipartisan Misconception 6: *Chicago’s Gun Homicide Rate is Spiraling*

“Nothing illustrates America’s breakdown like the way the President’s hometown, Chicago, celebrates its holidays. Memorial Day: 12 dead, 56 wounded. The Fourth of July: 10 dead, 53 wounded. Labor Day: 9 dead, 46 wounded. This kind of third world carnage has become absolutely normal.”  
NRA CEO Wayne LaPierre, “How to Stop Violent Crime”, *NRA Advertisement*, October 27, 2015

In fact, the number of annual homicides in Chicago has decreased by 50% since the early 1990s. In 2014, Chicago had the fewest annual homicides since 1979.

Homicides in Chicago are currently at an all-time high.



## Misstatement

## Correction

## Survey Item

”It is true that in some cities, including here in my hometown of Chicago, gun violence and homicides have spiked– and in some cases they’ve spiked significantly... Because that’s real, we’ve got to get on top of it before it becomes an accelerating trend. President Barack Obama, “*Speech to the 122nd International Association of Chiefs of Police Annual Conference*”, October 27, 2015, Chicago IL.

### Bipartisan Misconception 7: *Spiraling Abortion Rate*

“On abortion, President Obama has chosen to pander to the most extreme elements of his party. In the Clinton years, the stated goal was to make abortion ‘safe, legal and rare.’ Now, apparently, Obama stands for an absolute, unqualified right to abortion—at any time, under any circumstances, and paid for by taxpayers.” Representative Paul Ryan (R, WI), “*Speech to the 2012 Value Voters’ Summit*”, Washington DC, September 12, 2012.

“I would like to reduce the number of unwanted pregnancies that result in women feeling compelled to get an abortion, or at least considering getting an abortion, particularly if we can reduce the number of teen pregnancies, which has started to spike up again.” President Barack Obama “*News Conference by the President*”, Washington DC, April 29, 2009.

In fact, according to the Center for Disease Control, the number of abortions has fallen by over 50% since the early 1980s. In 2012, there were fewer abortions than in any year since 1973.

The number of abortions performed in the US annually is at an all-time high.

### Bipartisan Misconception 8: *Obama Restricts Drone Strikes*

Misstatement	Correction	Survey Item
<p>“At a time we need resolve the most, we’re sounding retreat. Our enemies are emboldened all over the planet. Al Qaeda in Iraq is coming back with vengeance[sic]. [The President] shows this lack of resolve, saying “this war is over.” At a time when our homeland is under attack everyday, he’s changed the standard of when we can go after someone with a drone strike: the strike has to have no chance of civilian casualties. We’re diminishing our national security. Senator Lindsey Graham (R-SC), ”<i>Fox News Sunday</i>”, May 26, 2013.</p>	<p>According to an analysis of news reporting, President Obama has ordered ten times as many drone attacks as his predecessor, President George W.Bush.</p>	
<p>”Any U.S. military action in foreign lands risks creating more enemies and impacts public opinion overseas. Our laws constrain the power of the President even during wartime, and I have taken an oath to defend the Constitution. The precision of drone strikes and the secrecy can lead a President to view drone strikes as a cure-all for terrorism. For this reason, I’ve insisted on strong oversight of all lethal action.” President Barack Obama (D), ”<i>Speech at National Defense University</i>”, Washington DC, May 23 2013.</p>		

Table 5: Study 2 Misstatements, Corrections, and Survey Items

## A.4 Study 2 Linear Model Coefficients

	China holds majority of US debt		Obama accommodates undocumented immigrants		Obama passed TARP		Obama restricts drones' use		Spiraling abortion rate		Spiraling Chicago gun violence		Spiraling teen pregnancy rate		Whites imminently a minority	
	Obama	Romney	Gutierrez	Cruz	Obama	Palin	Obama	Graham	Obama	Ryan	Obama	Lafierre	Lee	Carson	Langford	Graham
Intercept	3.6*	3.4*	3.7*	3.8*	3.2*	3.2*	2.6*	2.5*	2.9*	2.7*	3.4*	3.6*	3.3*	3.4*	3.3*	3.3*
	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Correction	-1.4*	-1.4*	-1.0*	-1.0*	-1.2*	-0.7*	-0.7*	-0.7*	-1.0*	-0.9*	-1.1*	-1.4*	-1.4*	-1.3*	-1.1*	-1.0*
	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.06	0.06	0.05	0.05	0.06	0.06
Ideology	0.6	7.4*	15.1*	7.5*	1.6	7.8*	6.8*	1.0	9.6*	18.5*	9.9*	1.4	12.8*	7.7*	2.7	2.9
	1.54	1.50	1.49	1.47	1.47	1.53	1.51	1.41	1.41	1.39	1.50	1.46	1.36	1.40	1.63	1.59
Ideology <sup>2</sup>	0.8	0.2	-0.7	2.5	0.5	0.6	1.9	-3.0*	0.3	0.7	-0.2	1.7	-2.2	1.6	1.5	3.1
	1.52	1.48	1.47	1.51	1.46	1.55	1.50	1.39	1.40	1.39	1.49	1.45	1.36	1.43	1.62	1.57
Ideology <sup>3</sup>	0.8	1.3	1.5	0.2	-1.4	0.1	0.3	0.8	-0.2	1.9	-0.2	-0.5	0.8	3.5*	0.7	-2.0
	1.51	1.49	1.46	1.50	1.46	1.53	1.48	1.38	1.41	1.39	1.50	1.47	1.37	1.41	1.63	1.57
Correction × Ideology	1.0	0.1	4.3*	-3.0	-2.7	2.1	-2.1	-2.4	-2.7	-8.5*	-0.1	2.3	-1.5	-1.1	2.8	-1.3
	2.21	2.14	2.09	2.11	2.08	2.18	2.08	1.96	2.00	2.00	2.15	2.07	1.99	1.99	2.27	2.23
Correction × Ideology <sup>2</sup>	-1.3	-0.5	2.7	-0.2	-2.3	-0.6	-2.9	-0.3	-1.2	0.4	4.8*	-1.2	5.1*	-0.5	1.1	-1.8
	2.21	2.14	2.09	2.11	2.08	2.18	2.08	1.96	2.00	2.00	2.15	2.07	2.00	1.99	2.27	2.24
Correction × Ideology <sup>3</sup>	1.9	-2.0	-5.5*	-0.7	1.7	0.3	-0.5	-0.5	1.4	-0.7	6.8*	2.8	1.2	-1.7	0.4	3.5
	2.22	2.15	2.09	2.11	2.08	2.18	2.08	1.96	2.01	2.00	2.15	2.07	1.99	1.99	2.27	2.23
n	1405	1396	1405	1396	1400	1401	1405	1396	1384	1417	1406	1395	1404	1397	1401	1400
Adj. R <sup>2</sup>	0.29	0.33	0.31	0.21	0.23	0.25	0.12	0.12	0.22	0.28	0.26	0.32	0.38	0.33	0.20	0.16
AIC	4273	4161	4118	4112	4096	4221	4095	3914	3942	4021	4204	4069	3961	3963	4335	4271

\* p ≤ 0.05.

Table 6: Study 2 Linear Model Coefficients. Issues are listed in the top row, and the two speakers within issue in the next row. Cell entries are beta coefficients and their standard error below. These models provide the predicted values in figure 2 on page 18.

## A.5 Study 3 Mock Newspaper Article Treatments. Randomized corrections shaded.

### A.5.1 Chicago Gun Violence (Obama Quote)

#### **Bloody Weekend In Chicago–10 Killed, 53 Wounded in violent long weekend.**

*Chicago Daily News*, July 5th 2015

By Laura McFarlane

As the fourth of July holiday weekend drew to a close, communities, police and the Chicago community were left counting the cost of the most deadly three day span in two years, during which 63 residents were wounded or killed.

Community leaders were united in their call for a cessation of violence, and urged those who had information about the weekend's killings to contact the Chicago Police.

Chicago's violence topped headlines around the county. In remarks to a convention of the nation's police chiefs, President Barack Obama said "In my hometown of Chicago, gun violence and homicides have spiked– and in some cases they've spiked significantly... Because that's real, we've got to get on top of it before it becomes an accelerating trend."

Police department records, however, show a steady decline in homicides since the early 1990s, with 2014 having the fewest killings of any year since 1979.

A police spokesman reported that the city had excellent leads in many of the killings, and promised that the coming days would bring a slew of arrests.

### A.5.2 Chicago Gun Violence (Wayne LaPierre Quote)

#### **Bloody Weekend In Chicago–10 Killed, 53 Wounded in violent long weekend.**

*Chicago Daily News*, July 5th 2015

By Laura McFarlane

As the fourth of July holiday weekend drew to a close, communities, police and the Chicago community were left counting the cost of the most deadly three day span in two years, during which 63 residents were wounded or killed.

Community leaders were united in their call for a cessation of violence, and urged those who had information about the weekend's killings to contact the Chicago Police.

Chicago's violence topped headlines around the county. In remarks to a National Rifle Association convention, NRA Spokesman Wayne LaPierre said, "Nothing illustrates America's breakdown like the way the president's hometown, Chicago, celebrates its holidays. The Fourth of July: 10 dead, 53 wounded. This kind of third world carnage has become absolutely normal."

Police department records, however, show a steady decline in homicides since the early 1990s, with 2014 having the fewest killings of any year since 1979.

A police spokesman reported that the city had excellent leads in many of the killings, and promised that the coming days would bring a slew of arrests.

### A.5.3 Donald Trump, Mexican immigrants, and crime

#### **Donald Trump Announces Presidential Bid with Bombastic Promise to Restore Country's Greatness**

*Atlanta Tribune*, July 13th 2015

By Andrew J Charles

Real Estate Mogul, reality TV star, and best-selling author Donald Trump announced his candidacy for President in the Trump Tower in Midtown Manhattan today.

In pursuing the GOP nomination, Trump pledged to defend America from its enemies and restore its greatness: "Our enemies are getting stronger and stronger by the day and we as a country are getting weaker. I'm serious when I tell you I will make this country great again."

Trump was especially critical of those Mexicans who are in the United States illegally, saying: "The US has become a dumping ground for everyone's problems. When Mexico sends its people, they're not sending their best. They're bringing drugs. They're bringing crime. They're rapists."

However, according to a recent U.S. Census Bureau study, undocumented immigrants actually commit crimes at a lower rate than the general population.

Trump promised that he would govern unlike any traditional politician, dispensing with "favors for special interests" and instead focus on the needs of everyday Americans.

### A.5.4 Spiraling Abortion Rate

#### **Rep Ryan: I'll Fix America's Decline in Social Values**

*San Jose Herald*, September 12th 2012

By Nicholas Katsiaficas

The Republican Party's nominee for Vice President, Representative Paul Ryan of Wisconsin, laid out the bold new path a Romney/Ryan White House would seek on social issues, while harshly criticizing President Obama, in a speech in Washington, DC yesterday.

Ryan claimed that the President Obama had backtracked on many long-standing and previously bipartisan American commitments, such as robust support for Israel, opposition to an Iranian nuclear weapon, and commitment to the objective of full employment.

Ryan's most cutting criticism, met with enthusiastic applause, was made of the President's changed policy on abortion: "In the Clinton years, the stated goal was to make abortion 'safe, legal and rare.' Obama stands for an absolute, unqualified right to abortion—at any time, under any circumstances, and paid for by taxpayers."

Statistics from the Center for Disease Control tell a different story. The number of abortions steadily declined during President Obama's first term, with fewer abortions in 2012 than any year since 1973.

Ryan closed by urging attendees to recognize the importance of this election, by promising that America might be "forever changed" if the President was granted a second term in office.

#### A.5.5 Solar Power Employment

##### **Clinton: Together, We'll Remake Our Economy, Rebuild the Middle Class**

*Concord News*, December 8, 2015

By Michelle Bardella

In a public forum hosted by the Concord Monitor, former Secretary of State Hillary Clinton, a leading Democratic candidate for President, outlined a plan for the economic renewal of New England. Clinton's plans revolved around a combination of government spending and tax incentives, designed to spur employment.

Clinton emphasized the role government can play creating "Green" energy jobs—jobs in renewable energy sectors, such as solar power. Clinton observed that, following the Obama administration's expansive commitment to solar subsidies, "We now have more jobs in solar than we do in oil!"

According to the Bureau of Labor Statistics, however, about four times as many Americans are employed in oil extraction than in solar power.

Clinton promised that her commitment to spurring job growth in the region will last "long after the clamor of the political season has died down."

#### A.5.6 US Healthcare Costs

##### **Sanders sees collapse in middle class, unacceptable inequality**

*Dayton Star*, August 26, 2015

By Michael Calderone

The Democratic candidate for President, Senator Bernie Sanders (Independent, Vermont), was interviewed on NBC's Meet The Press yesterday, and provided a clear description of his intended economic program.

Senator Sanders complained that despite a recovered economy, and the increasing prosperity among those at the top of the economic ladder, the American middle class had never been more in jeopardy.

Sanders asserted that "we are the only major country on earth that doesn't guarantee health care to all people, [and] working class families are not finding it very, very difficult to send their kids to college."

When pressed on the expense of his programs, Sanders resisted, pointing out that inclusive social programs need not be more expensive: "I live 100 miles away from Canada: they guarantee health care to all people. We spend almost twice as much per capita on our health care as do the people of any other country."

Sanders's claim flies in the face of data from the Organization for Economic Cooperation and Development (OECD), which show that, in 2014, the US paid only 40% more per capita than Switzerland.

When Sanders' candidacy was first announced, there was some uncertainty about just what it would mean to be a "socialist" Presidential candidate. Following Sunday's interview, there is little remaining doubt that Sanders intends a considerable expansion of the federal government.

## A.5.7 Iraq WMD

### News text

Wilkes-Barre, PA,  
October 7, 2004 (AP)

President Bush delivered a hard-hitting speech here today that made his strategy for the remainder of the campaign crystal clear: a rousing, no-retreat defense of the Iraq war.

Bush maintained Wednesday that the war in Iraq was the right thing to do and that Iraq stood out as a place where terrorists might get weapons of mass destruction.

“There was a risk, a real risk, that Saddam Hussein would pass weapons or materials or information to terrorist networks, and in the world after September the 11th, that was a risk we could not afford to take,” Bush said.

While Bush was making campaign stops in Pennsylvania, the Central Intelligence Agency released a report that concludes that Saddam Hussein did not possess stockpiles of illicit weapons at the time of the U.S. invasion in March 2003, nor was any program to produce them under way at the time. The report, authored by Charles Duelfer, who advises the director of central intelligence on Iraqi weapons, says Saddam made a decision sometime in the 1990s to destroy known stockpiles of chemical weapons. Duelfer also said that inspectors destroyed the nuclear program sometime after 1991.

The President travels to Ohio tomorrow for more campaign stops.

## A.8 Study 4 Mock Newspaper Article Treatments. Randomized corrections shaded.

The Abortion, WMD, and Solar Power treatments in Study 4 were identical to the mock articles described in sections A.5.4, A.5.7, and A.5.5, respectively.

### A.8.1 Fracking (Sanders)

#### **Sanders: Secretary Clinton ignores fracking’s devastating cost**

*The Richmond Star*, April 16, 2016

By Andrea Simpson

In an op-ed published yesterday, Senator Bernie Sanders (VT), the underdog candidate for the Democratic Presidential nomination, slammed his front-running opponent, Secretary Hillary Clinton (NY), for ignoring the environmental devastation wrought by hydraulic fracturing of underground minerals, a process commonly known as fracking.

Fracking has undergone rapid growth in the US in the last decade, reducing energy prices and providing new industries and jobs, especially in the region of the Midwest most hurt by the generations-long decline in manufacturing.

Writing yesterday, Sanders said this economic windfall had come at the cost of polluting Americans’ drinking water, and had dangerously impaired young people’s health,

## A.6 Study 3 Linear Model Coefficients

	Spiraling Chicago gunviolence (LaPierre)	Spiraling Chicago gun violence (Obama)	More jobs in solar than oil (Clinton)	Spiraling abortionrate (Ryan)	Undoc immigrants disprop. criminal (Trump)	US h.care twice as expensive other countries (Sanders)
Intercept	4.1** 0.07	4.2** 0.07	2.9** 0.05	3.1** 0.04	2.9** 0.05	3.6** 0.06
Correction	-1.0** 0.10	-1.0** 0.10	-0.8** 0.07	-0.6** 0.06	-0.5** 0.07	-0.2* 0.08
Ideology	1.9 1.50	0.5 1.48	-4.8* 1.58	12.1** 1.41	15.9** 1.48	-4.8* 1.78
Ideology <sup>2</sup>	0.4 1.46	2.0 1.46	-3.3* 1.58	0.0 1.40	1.7 1.44	2.1 1.77
Ideology <sup>3</sup>	1.6 1.46	-0.4 1.46	-2.7 1.56	1.6 1.41	1.6 1.47	1.2 1.78
Correction× Ideology	3.2 2.14	1.5 2.14	4.9* 2.31	-0.2 1.99	1.8 2.09	-0.6 2.49
Correction× Ideology <sup>2</sup>	0.1 2.14	-0.5 2.14	0.5 2.31	3.0 2.01	0.5 2.10	-0.4 2.49
Correction× Ideology <sup>3</sup>	0.7 2.15	-0.9 2.14	2.2 2.32	-0.2 2.01	-1.5 2.10	-0.9 2.49
n	489	488	977	977	977	977
Adj.R <sup>2</sup>	0.19	0.19	0.13	0.19	0.25	0.02
AIC	1460	1457	3057	2766	2861	3202

\*\*\* $p \leq 0.001$ , \*\* $p \leq 0.01$ , \* $p \leq 0.05$ .

Table 7: Study 3 linear model coefficients. Issues are listed in the top row (with the associated speaker provided in the parentheses.) Cell entries are beta coefficients with their associated standard error below. These models provide the predicted effects depicted in figure 3 and the marginal effects depicted in figure 4 on page 23.



## A.7 Study 4 Linear Model Coefficients

	Abortion			Fracking			Solar Power			Taxes (Trump)			Unemployment (Trump)			WMD (Bush)		
	Simp	Mod	Comp	Simp	Mod	Comp	Simp	Mod	Comp	Simp	Mod	Comp	Simp	Mod	Comp	Simp	Mod	Comp
Intercept	2.8*	2.9*	2.6*	4.1*	4*	3.7*	2.9*	2.8*	2.7*	2.7*	2.7*	2.6*	2.6*	2.4*	2.3*	2.4*	3*	4*
	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ideology	11.7*	10.6*	11*	-5.7*	-5.6*	-7.5*	-2.4	-5.8*	13.3*	11.4*	9.6*	9.6*	7.8*	13.8*	9.2*	9.3*	6.9*	-8.7*
	1.6	1.4	1.5	1.5	1.6	1.5	1.6	1.4	1.4	1.6	1.5	1.5	1.8	1.7	1.7	1.5	1.8	1.4
Ideology <sup>2</sup>	1.4	1.8	-1.2	-1.1	2.3	0.2	-2.6	-2.9*	0.2	-0.9	3.1	1.4	1.4	-0.3	1.4	-2.2	-0.4	-1.3
	1.6	1.4	1.5	1.4	1.6	1.6	1.6	1.4	1.3	1.7	1.6	1.7	1.9	1.7	1.6	1.5	1.9	1.4
Ideology <sup>3</sup>	-0.1	1	-2.7	-1.1	1.3	-1.5	-0.5	0.9	-0.5	1.5	0.5	-1.7	-2	-0.3	-0.4	-1.5	2.8	1.6
	1.6	1.4	1.5	1.4	1.5	1.5	1.6	1.4	1.4	1.7	1.6	1.4	1.8	1.6	1.7	1.5	1.8	1.4
Correction	-0.5*	-0.8*	-0.7*	-0.7*	-0.6*	-0.4*	-0.7*	-0.9*	-0.8*	-0.2*	-0.4*	-0.4*	-0.2	-0.3*	-0.3*	-0.4*	-0.1	0.2
	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Correction×	-2.4	-1.3	0.8	3.2	-1.7	-0.5	1.3	4.7*	5.5*	-1.6	3.1	3.1	2.1	-2.7	0.9	0	0.6	3
	2.1	2	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.4	2.3	2.3	2.2	2.4	1.9
Correction×	-1.6	-5.1*	3.8	-2.8	-5.3*	-2.2	3.3	1.2	-4.1*	0.6	-0.4	-0.4	-0.9	0.1	0.3	0.9	0.4	0.8
	2.2	2	2.1	2.3	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.4	2.3	2.3	2.2	2.4	1.9
Correction×	0.2	-1.2	2.6	4.6*	-0.3	0.1	0.1	-1.2	0.5	-0.3	-0.5	-0.5	0.7	0.7	1.8	2.8	-2.5	-2
	2.2	2	2.1	2.3	2.2	2.2	2.2	2.1	2	2.2	2.2	2.2	2.4	2.3	2.3	2.2	2.4	1.9
n	450	436	446	438	448	446	444	444	444	449	448	435	442	448	442	439	446	447
Adj.R <sup>2</sup>	0.2	0.28	0.27	0.13	0.11	0.11	0.1	0.18	0.17	0.29	0.2	0.22	0.11	0.21	0.15	0.16	0.07	0.11
AIC	1337	1233	1292	1314	1359	1334	1338	1296	1275	1284	1348	1302	1413	1412	1366	1338	1429	1247

\*\*p≤0.001, \*p≤0.01, p≤0.05.

Table 8: Study linear model coefficients. Issues are listed in the top row (with the associated speaker provided in the parentheses.) Cell entries are beta coefficients with the associate standard error below. These models make up the correction effects depicted in figure 5 on page 27.

“The toxic chemicals used in fracking are known to cause lung cancer and birth defects. Both the Environmental Protection Agency (EPA) and the National Academy of Sciences have shown clear evidence that hydraulic fracturing can lead to a contaminated water supply. There is simply no good way to contain the cocktail of toxic chemicals pumped into the ground,” Sanders wrote.

In fact, the EPA’s position on fracking is not as Sanders described it. A recent EPA report on fracking concluded: “We did not find evidence that these mechanisms have led to widespread, systemic impacts on drinking water resources in the United States.”

Sanders went on to claim that, by opting to support an expansion of fracking, Secretary Clinton had demonstrated values inconsistent with the interests of the American people.

### A.8.2 Abortion (Ryan)

#### **Rep Ryan: I’ll Fix America’s Decline in Social Values**

*San Jose Herald*, September 12th 2012

By Nicholas Katsiaficas

The Republican Party’s nominee for Vice President, Representative Paul Ryan of Wisconsin, laid out the bold new path a Romney/Ryan White House would seek on social issues, while harshly criticizing President Obama, in a speech in Washington, DC yesterday.

Ryan claimed that the President Obama had backtracked on many long-standing and previously bipartisan American commitments, such as robust support for Israel, opposition to an Iranian nuclear weapon, and commitment to the objective of full employment.

Ryan’s most cutting criticism, met with enthusiastic applause, was made of the President’s changed policy on abortion : “In the Clinton years, the stated goal was to make abortion ‘safe, legal and rare.’ Obama stands for an absolute, unqualified right to abortion—at any time, under any circumstances, and paid for by taxpayers.”

Statistics from the Center for Disease Control tell a different story. The number of abortions steadily declined during President Obama’s first term, with fewer abortions in 2012 than any year since 1973.

Ryan closed by urging attendees to recognize the importance of this election, by promising that America might be “forever changed” if the President was granted a second term in office.

### A.8.3 Tax cuts (Trump)

#### **Lower rates, fewer rules, more fairness—Trump says tax plan will be a ‘Rocket Ship’ for the economy**

Leonard Andrew

*Houston Morning News*

September 28, 2015

GOP Presidential frontrunner, businessman Donald Trump, today revealed his new tax plan by promising to simplify the tax system, reduce tax rates, and eliminate loopholes, all while shrinking the federal government’s deficit.

“It will be simple, it will be easy, it will be fair,” Trump said at a press conference,. He went on to say that his plan “reduces or eliminates loopholes available to the special interests and the very rich. In other words, it’s going to cost me a fortune.”

Along with eliminating federal income taxes on those making less than \$50,000, Trump proposes to cut the business tax rate in half , reduce the capital gains tax rate, while still retaining popular deductions like the credits for charitable deductions and mortgage interest.

Trump promised these cuts would not increase the federal deficit, saying “my plan will grow the American economy at a level we haven’t seen in decades. It will take off like a rocket” and generate more revenue overall.

This was quickly contradicted by the non-partisan Tax Policy Center. Even under the most optimistic projections, Trump’s tax plan would add about \$10 trillion to the federal deficit.

With Trump’s increasing his lead over his primary rivals, his bold new tax plan is sure to be a key topic of conversation in the coming candidate debate.

#### A.8.4 True Unemployment (Trump)

##### **Trump: true unemployment rate 30-40 percent, or higher**

Christina Conte

*Bangor Sentinel*

February 8, 2016

Following his dramatic victory in yesterday’s New Hampshire primary, GOP presidential frontrunner, businessman Donald Trump, claimed that the American people were being badly misled about the true state of the US economy.

“I am going to be the greatest jobs president that God ever created—remember that!” Trump instructed his supporters in Manchester on Tuesday evening, before seeking to distinguish himself from the economic management of President Obama.

Trump told his supporters: “Don’t believe those phony numbers when you hear 4.9 and 5 percent unemployment. The number’s probably 28, 29, as high as 35. In fact, I even heard recently 42 percent. Do you think we’d have gatherings like this if we had 5 percent unemployment?”

Trump’s claim is plainly false. The Bureau of Labor Statistics has gathered survey data on unemployment since the 1940s; there’s never been a single recorded instance of political interference. The BLS estimates today’s unemployment rate to be 4.9%

Trump’s campaign announced a new set of rallies planned for Nevada and South Carolina, as he plans to build on his New Hampshire momentum.

	WMD	Abortion	True Unemployment	Tax Cuts	Solar Power	Fracking
<b>1. Simple</b>	Following the invasion of Iraq in 2003, US forces did not find WMD.	The number of abortions performed in the US annually is at an all-time high	The true unemployment rate is greater than 30%.	Trump's tax plan would reduce the federal deficit.	More Americans are employed in solar power than in oil extraction.	Fracking has caused widespread pollution to the water supply.
<b>2. Moderate</b>	Since Saddam Hussein had the opportunity to conceal and destroy weapons in the leadup to the invasion in 2003, US forces did not find WMD.	While the incidence of abortion is difficult to estimate because of privacy issues, the number of abortions in the US annually is at an all-time high..	After removing the effects of politicians interfering with the data, the true unemployment rate is greater than 30%.	While the US economy is large and difficult to analyze, Trump's tax plan would reduce the federal deficit.	While the US labor market is vast and constantly changing, more Americans are employed in solar power than in oil extraction.	While mining companies may have tried to limit the damage, fracking has caused widespread pollution to the water supply
<b>3. Complex</b>	Immediately before the U.S. invasion, Iraq had an active weapons of mass destruction program, the ability to produce these weapons, and large stockpiles of WMD, but Saddam Hussein was able to hide or destroy these weapons right before U.S. forces arrived.	While the incidence of abortion is difficult to estimate because of privacy issues, and also because of the threat that these numbers were changed for political reasons, the number of abortions in the US annually is at an all-time high.	The unemployment rate has important political ramifications, and government statisticians are susceptible to threats and influence. After removing the effects of politicians interfering with the data, the true unemployment rate is greater than 30%.	Even with the size and complexity of the US economy, the uncertainty surrounding economic projections, and the inherent bias in evaluating a political candidate's policies, Trump's tax plan should spur growth and investment, and ultimately reduce the federal deficit.	While the US labor market is vast and constantly changing, and the energy sector's use of temporary employees makes measuring their workforce more difficult, more Americans are employed in solar power than in oil extraction.	While mining companies may have tried to limit the damage, weak oversight from the federal government and the vast amounts of chemicals used in fracking has caused widespread pollution to the water supply.

Table 9: Study 4 survey items. Each column corresponds to a mock article presented in section A.8

A.9 Study 4: Treatment Items ordered by complexity and issue

A.10 Pre and Post Weighted distribution of respondent characteristics, by study

A.11 Is factual adherence principally a function of partisanship or ideology?

As a final robustness check, we estimate every issue model again, alternating partisanship and ideology as the predictive covariate (with the same functional form as equation 1 on 13 .) Reflecting their importance to American political behavior, a voluminous literature has shown partisanship and ideology to be related but distinct contours of mass attitudes. Partisanship reflects voters' identity commitments to a political party, serving as a specialized case of group affect. This group identity assures voters that their copartisan candidates for office will eventually voter consistent with their interests, even absent candidate-specific information. Ideology is the mass understanding of the political space in which these parties, individuals, and all other political actors find themselves. Among the highly educated, ideological ordering is stable and clear. To the less well educated, ideological space appears an inchoate clump, and respondent struggle to make use of this dimension (Wood & Oliver, 2012).

Accordingly, ideology and partisanship each have the potential to cause informational backfire. An ideologue might seek to redress their displeasure at receiving facts inconsistent with their ideological principles—and in devising a counter argument, make themselves more convinced in their original position. A partisan might similarly seek to protect a co-partisan political speaker, or grow frustrated when exposed to information they perceive as discordant with their party's electoral interests.

We therefore separately estimate the size of correction effects as a function of ideology and partisanship (leaving us with two separate linear models for each issue, one for each predictor type.) Figure 9 show the size of these marginal effects, with any point under the dashed horizontal indicating factual updating consistent with the correction. Solid points indicate ideological updating—hollow points partisan updating. These effect sizes are almost unerringly similar—only among the most conservative respondents are there any significant differences, with Republicans and Conser-

vatives alternating between being more factually responsive on certain issues. While we principally use ideology to be consistent with Nyhan and Reifler, our respondents' consistent adherence to factual correction is not contingent on either choice.

Characteristic	Value	Unweighted				Weighted				Population Target
		Study Wave				Study Wave				
		1	2	3	4	1	2	3	4	
Age	1. 18-24	15	16	15	14	15	14	15	16	<b>13</b>
	2. 25-44	68	68	69	69	48	46	50	44	<b>35</b>
	3. 45-64	16	15	15	16	29	30	28	28	<b>35</b>
	4. 65+	2	2	2	1	8	10	8	12	<b>17</b>
Education	1. HSD or Less	10	10	13	12	13	9	12	12	<b>12</b>
	2. Some College	38	37	39	39	47	50	47	51	<b>56</b>
	3. BA+	51	53	48	49	40	41	40	36	<b>32</b>
Race	1. White	78	79	77	78	69	67	67	67	<b>64</b>
	2. Black	7	7	6	7	8	10	10	10	<b>12</b>
	3. Hispanic	6	5	6	7	13	14	12	14	<b>16</b>
	4. Other	9	9	11	8	10	9	11	9	<b>8</b>
Gender	1. Male	52	52	58	54	51	51	55	55	<b>48</b>
	2. Female	48	48	42	46	49	49	45	45	<b>52</b>
Employment	1. Working Full Time	55	77	63	72	70	70	68	70	<b>72</b>
	2. Working Part-time	18	0	21	6	19	0	20	20	<b>16</b>
	3. Unemployed	14	10	9	10	6	10	5	5	<b>5</b>
	4. Retired/Other	12	13	6	11	5	20	9	4	<b>8</b>
Partisanship	1. Democrats	51	50	52	50	46	47	46	46	<b>47</b>
	2. Independents	25	26	24	28	19	17	20	18	<b>14</b>
	3. Republicans	24	24	24	22	34	35	34	36	<b>39</b>
Ideology	1. Liberal	54	54	57	13	36	36	38	38	<b>24</b>
	2. Moderate	21	22	20	16	29	28	31	31	<b>32</b>
	3. Conservative	24	24	23	45	35	37	31	31	<b>36</b>
Religion	1. Protestant	6	13	4	20	29	35	27	27	<b>47</b>
	2. Catholic	12	15	12	17	20	21	21	21	<b>21</b>
	3. Mormon	15	1	14	28	6	2	6	10	<b>2</b>
	4. Atheist	45	44	48	22	31	29	32	28	<b>23</b>
	5. Other	22	26	22	17	14	14	14	14	<b>8</b>
Income	1. \$1-\$20k	16	15	20	12	28	30	32	32	<b>36</b>
	2. \$20-\$40	28	26	28	20	27	25	29	29	<b>26</b>
	3. \$40-\$40	22	21	22	25	19	18	16	16	<b>15</b>
	4. \$60-\$80	17	18	16	15	12	11	12	12	<b>9</b>
	5. \$80-\$100	7	7	6	8	6	5	4	4	<b>4</b>
	6. \$100+	11	13	8	10	8	11	8	8	<b>9</b>

Table 10: Effect of providing rake weights for MTurk sample to population margins. The target distribution is listed in bold in the rightmost column.

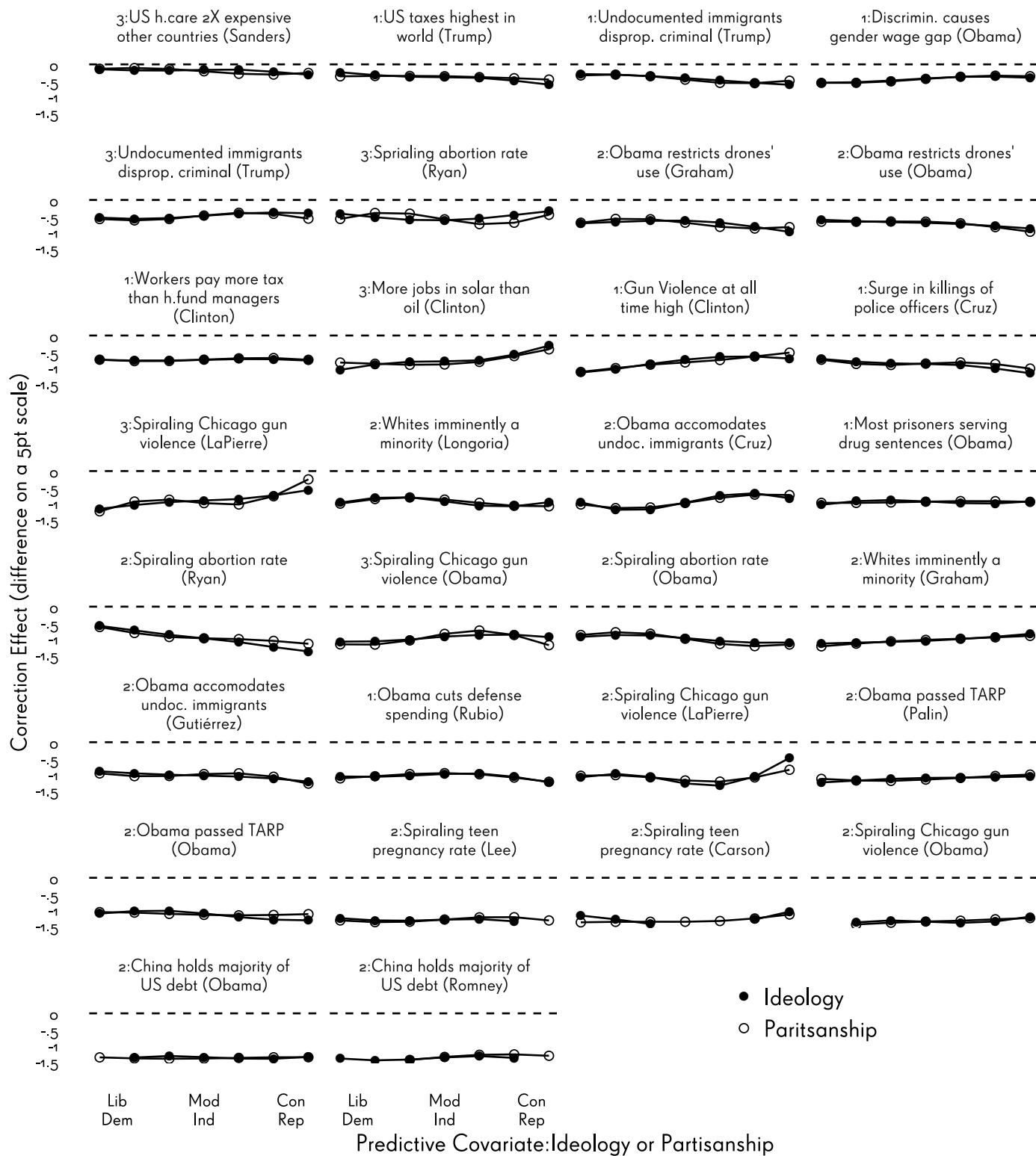


Figure 9: Comparing the effect of ideology and partisanship on corrections effects. Hollow points show the effect of corrections when modeled using partisanship, solid when modeled using ideology. The number in the facet label indicates study in which a particular issue was tested.