

# Experiments to Reduce the Over-Reporting of Voting: A Pipeline to the Truth

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Voting is a fundamental part of any democratic society. But survey-based measures of voting are problematic because a substantial proportion of nonvoters report that they voted. This over-reporting has consequences for our understanding of voting as well as the behaviors and attitudes associated with voting. Relying on the “bogus pipeline” approach, we investigate whether altering the wording of the turnout question can cause respondents to provide more accurate responses. We attempt to reduce over-reporting simply by changing the wording of the vote question by highlighting to the respondent that: (1) we can in fact find out, via public records, whether or not they voted; and (2) we (survey administrators) know some people who say they voted did not. We examine these questions through a survey on US voting-age citizens after the 2010 midterm elections, in which we ask them about voting in those elections. Our evidence shows that the question noting we would check the records improved the accuracy of the reports by reducing the over-reporting of turnout.

## 1 Introduction

Research examining voting behavior via surveys has a severe limitation—some respondents report that they voted when they did not actually vote, a phenomenon referred to as vote over-reporting (see, e.g., Clausen 1968; Traugott and Katosh 1979).<sup>1</sup> Using voter validation data from election officials, Belli, Traugott, and Beckmann (2001) found that the percentage of over-reporters in the American National Election Studies (ANES) typically ranged from 8% to 14%. High rates of over-reporting raise serious concerns about the validity of our measure of voting—one of the

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<sup>1</sup>Reporting that one did not vote when he/she did (under-reporting) is another source of error. However, the rate of underreporting is so small that researchers give it little, if any, attention (Belli, Traugott, and Beckmann 2001). Our focus here is on the accuracy with which individuals respond to survey questions once they agree to participate. There are a variety of other reasons why survey reports overall suggest higher levels of turnout than official records. For example, higher turnout rates can result from the over-representation of voters as they are more likely to be included in the sampling frame and to participate in the survey. Moreover, pre-election interviews or participation in a panel might increase the likelihood of voting. For a discussion of these issues, see Burden (2000, 2003), McDonald (2003), and Martinez (2003).

most basic political behaviors. The purpose of our article is to offer new survey questions designed to reduce the over-reporting of voting.

Besides finding that vote over-reporting greatly distorts the accuracy of survey estimates of voter turnout, researchers have also found that vote over-reporting is not distributed randomly across the population (see, e.g., Hill and Hurley 1984; Silver, Anderson, and Abramson 1986; Belli et al. 2001; Bernstein, Chadha, and Montjoy 2001; Cassel 2003; Karp and Brockington 2005; Deufel and Kedar 2010; Ansolabehere and Hersh 2012). The unequal distribution of over-reporting has led some researchers to contemplate the value of using survey measures of voter turnout to understand who votes and why (see, e.g., Silver et al. 1986; Bernstein et al. 2001). Indeed, vote over-reporting can create biased estimates that challenge some of the standard theoretical expectations and empirical regularities in the literature on voting (Silver et al. 1986; Bernstein et al. 2001; Cassel 2003; Deufel and Kedar 2010; Ansolabehere and Hirsch 2012).

Over-reporting on the vote question also causes problems for other related political variables because it operates as a filter question for subsequent behavioral and attitudinal measures. These include candidate choice (Wright 1993)<sup>2</sup> and election administration questions, which have become more common since the controversial 2000 presidential election between George W. Bush and Al Gore (see, e.g., Alvarez, Hall, and Llewellyn 2008), and are usually administered only to people who reported that they voted. When actual nonvoters answer election administration questions, the consequences of vote over-reporting might extend to real-world policy debates over how to administer proper and fair elections.

Working from a new theoretical perspective that integrates the literature on voting and the reporting of sensitive behaviors, we propose a new set of measures designed to provide a more accurate assessment of who voted and who did not. Drawing from the “bogus pipeline” approach (see, e.g., Jones and Sigall 1971), commonly used in public health and psychology, we investigate whether or not changes in the wording of the turnout question can cause respondents to provide more accurate responses. We discuss the pipeline approach in more detail later, but the key feature involves convincing respondents that the researchers can determine whether they are telling the truth.<sup>3</sup> Using a survey experiment on a nationally representative sample of voting-age citizens, we alter the vote question relating to voting in the 2010 midterm elections in two ways. In our treatment conditions, we either inform respondents that: (1) we (survey administrators) can in fact find out, via public records, whether or not they voted; or (2) we know some people who say they voted did not. We also supplemented the survey experiment with a voter validation study to evaluate the survey reports against official records. To the best of our knowledge, we are the first to apply the pipeline approach in political science and on a nationally representative sample. Additionally, we are among the first to perform a vote validation study on a nationally representative sample using electronic databases (see Ansolabehere and Hersh 2012). We find that informing respondents that we will check their answers against public records reduced over-reporting and improved the accuracy of the responses.

## 2 Theoretical Framework

### 2.1 *Over-Reporting in Political Science*

Political scientists have long been concerned with the over-reporting of voting. Since the early 1960s, researchers have identified validity problems associated with measuring voter turnout via self-reports on surveys (e.g., Clausen 1968). In response to these concerns, researchers experimented with the wording of the vote question.<sup>4</sup> Unfortunately, the earliest attempts to reduce over-

<sup>2</sup>For a discussion of bias in vote choice among those who reported voting, see Carsey and Jackson (2001) and the citations therein.

<sup>3</sup>The convention in the literature is to refer to the approach as the “bogus pipeline” since much of the work relies on bogus information meant to deceive respondents. Though we use this naming convention here, strictly speaking we use the “actual pipeline” approach since we do not use deception in our research design.

<sup>4</sup>Researchers have also used list experiments to obtain better estimates of sensitive behavior (see, e.g., Corstange 2009; Holbrook and Krosnick 2010). Unfortunately, due to the nature of the data generated from list experiments, the ability

reporting via changes in question wording failed (see Presser 1990; Abelson, Loftus, and Greenwald 1992; Belli, Traugott, and Rosenstone 1994). One of the main struggles for researchers has been devising a turnout question that reduces the social desirability pressures that lead to over-reporting. That is, individuals recognize the importance of voting to citizenship and representative democracy, so when confronted with a turnout question in a survey context, they feel pressure to say they voted even when they did not. Researchers have also struggled to combat memory failures when respondents are asked about voting. By simultaneously addressing concerns with social desirability pressures and confusion due to memory failure, Belli et al. (1999) were the first to reduce over-reporting via changes in the wording of the turnout question. Two additional studies working along the same lines have also shown that changes in the question wording can reduce over-reporting. One of the successful manipulations used longer question stems to cue memory as well as answer choices that offered respondents more socially accepted ways to admit nonvoting (Belli, Moore, and VanHoewyk 2006), and another successful manipulation used just the answer choices that reduce social desirability pressure (Belli et al. 2006; Duff et al. 2007). However, despite these improvements, citizens still over-report voting.

Before discussing how we might move closer to a more accurate vote measure, we offer a new perspective on the various mechanisms that lead to the over-reporting of voting. The pressure to over-report voting has generally been thought of as an external pressure, but we argue that the pressure might be internal as well. Our view derives from the belief that voting is best described as an expressive act. That is, voters obtain some benefit from *being* a voter (Schuessler 2000). Under this view, people with strong attachments to democracy and/or their political party take pride in being voters and generally think of themselves as voters, even when, from time to time, they do not vote. As Schuessler (2000) argues, citizens view *being* a voter as an identity held in their own minds as well as an identity they wish to convey to others.

Early studies of vote over-reporting approached the problem as one driven by external pressure—the pressure of the respondent to signal to the interviewer that he/she conformed to the norm of voting (e.g., Silver et al. 1986; Bernstein et al. 2001). For example, Bernstein et al. (2001) argue that pressure to vote leads to feelings of guilt among those who did not vote; they contend that nonvoting respondents “are unwilling to confess to the interviewer . . . as they wish to avoid the shame they would feel were they to let others know of their failure” (Bernstein et al. 2001, 24–25). We agree but contend there is more to the story.

Since expressive motivations can function without being displayed publicly (Schuessler 2000), we expect that over-reporting should not be limited to situations in which there is an interviewer. In fact, Ansolabahere and Hersh (2012) found that over 50% of validated nonvoters in the 2008 Cooperative Congressional Election Study (CCES), which is a self-administered Internet survey, reported that they voted. Drawing on identity theory (see, e.g., Stryker and Serpe 1994) and insights from survey methodology (see, e.g., Schwarz 1996), Brenner (2011) discusses how internal pressures might reduce over-reporting of church attendance. He argues that respondents seeking to preserve their self-conception might interpret a question about a specific behavior to be about a broader identity, such as being someone who values religious attendance. We think this type of pressure also applies to voting. In addition to interpreting the turnout question as one about behavior in the election in question, respondents may view the question as being a broader one about whether they think of themselves as voters.<sup>5</sup> As a result, respondents may want to think of themselves as civically virtuous people who value participating in democracy’s most fundamental act. Given that most nonvoters in a given election actually voted in other recent elections (Berinsky 2005), we believe this phenomenon is quite prevalent.

We also contend that the logic of expressive voting suggests another mechanism. The act of voting is the primary means by which individuals obtain expressive benefits. For those who think of themselves as voters, failing to vote in an election prevents them from fully attaching

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to draw inferences about who engaged in the behavior of interest, and thus the ability to answer a variety of related research questions, is severely limited (Corstange 2009).

<sup>5</sup>Bernstein et al. (2001) also contemplate the possibility that respondents rationalize and interpret the turnout question as being a question about preferences among the candidates.

themselves to the outcome. For these individuals, participating in the survey gives them an opportunity to claim some of that attachment; that is, by falsely saying that they voted they can express their identity as voters, or as voters for a particular candidate or party. This sort of expression need not be done in the presence of an interviewer. With the rise of Internet panels consisting of individuals who opt into particular surveys, we believe this behavior might become increasingly common. In sum, we contend that the pressure to over-report voting consists of both internal and external pressure. We now turn our attention to an approach that combats this pressure.

## 2.2 *The Pipeline Approach*

Researchers in the fields of public health, psychology, and sociology have for decades dealt with similar issues when studying individual responses to sensitive questions, such as those that have to do with sexual attitudes and behavior and drug use. These researchers have established a set of techniques designed to reduce the influence of social desirability pressures in the context of interviews and surveys dealing with sensitive topics.

Of particular relevance is the “bogus pipeline” approach (see Clark and Tiffit 1966; Jones and Sigall 1971; Wish et al. 2000; Tourangeau and Yan 2007). Jones and Sigall (1971, 349) begin their seminal article on the bogus pipeline by describing researchers who rely on self-reports as having “fantasies about discovering a direct pipeline to the soul (or some nearby location)” to overcome concerns about the accuracy of self-reported attitudes and behavior. In studies of sensitive behaviors, such as drug use or smoking, when respondents could be convinced that the researcher would learn the truth about their behavior, such as through a lie detector or a breath sample, respondents were more likely to tell the truth (Tourangeau and Yan 2007). That is, this line of research demonstrated that respondents prefer to come clean on questions subject to social desirability pressures rather than being perceived as, or thinking of themselves as, both a liar and one who engages in a socially undesirable behavior (i.e., a smoker, drug user, etc.). In other words, the pressure to be one who conforms to the social norm at issue in a question on sensitive behavior is replaced with the more powerful pressure to not be a liar. Researchers have found success with this approach both when they cannot actually determine the truth but deceive the respondents into thinking they can determine the truth, hence the “bogus” label, and when they can actually determine the truth, known as the “actual pipeline” approach.<sup>6</sup>

The pipeline approach is ideally suited to dealing with the vote over-reporting problem in surveys. If researchers can convince respondents that they can actually verify whether the respondent voted, this should reduce both the internal and external pressure respondents feel to over-report voting. Since survey responses regarding voting can be checked against official records, researchers can employ the “actual pipeline” approach to reduce the pressures to over-report by informing respondents that the researcher can and will examine official vote records to verify whether or not they voted. This approach should effectively reduce over-reporting because it offers the nonvoting respondent a choice to be seen and to think of themselves in one of two ways, as either a nonvoter or a nonvoter *and* a liar. Given that in nearly all situations being a liar represents a greater norm violation than being a nonvoter, we expect this approach will encourage respondents to tell the truth about whether or not they voted. In other words, the pressure to avoid being discovered as a liar, and/or thinking of oneself as a liar, helps overcome the pressure (external and internal) to identify as a voter.

The pipeline approach should work even in cases where memory failure, rather than pressure (internal or external), is at work (see Tourangeau, Smith, and Rasinski 1997). That is, for those who do not recall if they voted in a particular election and might genuinely be confused with behavior in other elections, being told that the official records will be checked might motivate respondents to perform a more thorough search of their memory so that they can avoid feeling like they might have lied.

<sup>6</sup>Importantly, the pipeline treatment does not increase nonresponse bias (Tourangeau and Yan 2007).

### 2.3 Hypotheses

Given this, we offer a set of more specific expectations for how we believe the pipeline approach applies to measuring voter turnout and ultimately reducing vote over-reporting. We hypothesize that presenting individuals with the possibility of being discovered to be a liar (external pressure) and thinking of themselves as a liar (internal pressure) should reduce nonvoters' likelihood of over-reporting. Here we offer two alternatives to the traditional turnout question (ANES), each designed to reduce vote over-reporting. The first is a direct application of the actual pipeline approach, and the second is a subtle turnout measure that might induce internal and external pressure to accurately report voting.

Using the actual pipeline approach, we examine the effectiveness of telling respondents that we will have access to the truth about whether they turned out. That is, by informing respondents in the context of the turnout question that we will examine official vote records (which we do) to determine whether they voted, we believe that we can induce respondents to provide more accurate responses. Because of the external pressure resulting from concern with being perceived by the researchers as a liar, we believe many potential over-reporters will find it prudent to accurately report their turnout. In an Internet survey, the external pressure to represent oneself as a voter is lower than in a phone or face-to-face survey, as the researchers (or interviewers) are not in direct contact with the respondent; yet, over-reporting is still a sizable issue for surveys conducted via the Internet (Ansolabehere and Hersh 2012). We believe this is driven by the internal pressure individuals feel to think of themselves as voters and thus via the survey express their identity as a voter, or a voter for a particular party, candidate, or issue. Thus, even when the researcher is more distant, being told the records will be checked forces respondents who did not vote to confront directly the possibility of thinking of themselves as liars. Put another way, the pipeline approach combats the internal pressure to think of oneself as a voter by inducing another form of pressure to avoid thinking of oneself as a liar and thus violating a norm they learned as a child (see Saxe 1991).

Not all survey researchers are able to validate the vote, and some might not want to deceive respondents by telling them they will check the records when they have no intention of actually checking them (i.e., the bogus pipeline approach). As a consequence, we offer a subtle means of encouraging respondents to report their turnout accurately. By informing respondents that "we know some people who say they voted did not," we seek to induce respondents to think more carefully about the truthfulness of their response.

This might create both external and internal pressure to combat the pressure to over-report. This subtle manipulation suggests to the respondent, without promising to validate their turnout, that there might be a way for researchers to find out whether or not they actually voted. Although less direct, to the extent that this creates external pressure it should heighten the respondents' concerns about the researchers discovering that they are actually lying about voting and ultimately reduce over-reporting. With regard to internal pressure, this language calls the issue of lying to the attention of respondents. That is, this subtle manipulation induces potential over-reporters to think more carefully about the implications of their responses to the turnout question for how they would like to see themselves: as either nonvoters or lying nonvoters.

Therefore, we test two hypotheses:

*H<sub>1</sub>: Telling respondents that we will check their voting records should reduce vote over-reporting relative to the control group (standard ANES question) and thus increase accuracy.*

*H<sub>2</sub>: Subtly getting respondents to think carefully about the truthfulness of their response should reduce vote over-reporting relative to the control group (standard ANES question) and thus increase accuracy.*

### 3 Experimental Design

Our experimental design randomly assigns subjects to one of three conditions: control condition (standard ANES vote question); actual pipeline condition (checking against public records); and subtle condition (some say they voted when they did not). Using the survey responses and validation results, we compare the pipeline condition and the subtle condition to the control

condition to determine the extent to which our vote questions reduce over-reporting and thus improve accuracy relative to the traditional ANES vote question. We present the three different versions of the turnout question below.

*ANES Turnout Question (Control Condition)*

In talking to people about elections, we often find that a lot of people were not able to vote because they weren't registered, they were sick, or they just didn't have time. Which of the following statements best describes you?

*Actual Pipeline Turnout Question (Treatment Condition 1)*

In talking to people about elections, we often find that a lot of people were not able to vote because they weren't registered, they were sick, or they just didn't have time. By looking at public records kept by election officials, we can get an accurate report of who actually voted in November, and in previous elections. Of course, these public records do not say who you voted for. Part of our study will involve checking these records against the survey reports. Which of the following statements best describes you?

*Subtle Turnout Question (Treatment Condition 2)*

In talking to people about elections, we often find that a lot of people were not able to vote because they weren't registered, they were sick, or they just didn't have time. We also sometimes find that people who say they voted actually did not vote. Which of the following statements best describes you?

We used the following answer choices from Belli et al. (1999) for each of the questions: (1) I did not vote (in the election this November); (2) I thought about voting this time but didn't; (3) I usually vote but didn't this time; and (4) I am sure I voted.

The experiment was conducted on a representative sample of US citizens of voting age through Knowledge Networks (KN), an Internet survey company, from November 3, 2010, to November 18, 2010. Respondents from the KN panel are matched to the national population on gender, age, race, education, census region, and Internet access. The total sample size was 2517 US citizens age 18 years or older. There was good variation on age, gender, partisanship, and education. The random assignment of subjects to conditions was successful (see supplementary appendix Table 1). As a result, any differences in the poststimulus dependent measures can be attributed to the manipulation and not to other factors (Kinder and Palfrey 1993).

Catalist provided the vote validation data for the 2010 and 2008 elections in April 2012. Catalist is a private firm that provides voter registration and turnout data from information collected from the states. Ansolabehere and Hersh (2012) provide an extensive review of Catalist's process and through a clever test demonstrate the high quality of Catalist's work.<sup>7</sup> Thus, we are confident that Catalist provides high-quality data. Moreover, Catalist did not have access to information on treatment assignment and simply performed the matching using standard background information collected by KN; because subjects are randomly assigned to conditions, any errors in the validation process would likely be randomly distributed across the three conditions.<sup>8</sup>

## 4 Results

We begin our analysis of over-reporting by examining validated nonvoters.<sup>9</sup> Since Silver et al.'s (1986) study, the use of validated nonvoters as the base for identifying over-reporting in turnout

<sup>7</sup>Catalist's database of over 265 million individuals covers all fifty states and the District of Columbia. Catalist cleans the data through a process that relies on additional information it regularly collects from marketing firms. Importantly, Catalist keeps the records of those who have been purged (i.e., removed from official registration records due to nonvoting, registration elsewhere, or death), accounts for duplicate listings, and seeks to identify movers via comparison to information from the US Post Office. To perform the validation, Catalist used the individual's background information from KN to match the information to their database. In addition to strong performance in Ansolabehere and Hersh's (2012) test, Catalist came in second place in the 2011 MITRE Multi-Cultural Name Matching Challenge, beating a number of leading firms, including IBM.

<sup>8</sup>We note that a threat to the validity of our findings could surface if the pattern of responses to our questions were correlated with issues that arise in Catalist's data-cleaning process. However, given the balance across conditions on key individual characteristics (see supplementary appendix Table 1), we think this is highly unlikely.

<sup>9</sup>We do not find any evidence that the pipeline treatment increased either survey nonresponse or item nonresponse. Both the number of respondents who dropped out of the survey and the number who refused to answer the voting question were small and comparable across all three conditions. With respect to dropouts, one individual in the control condition

studies has become fairly standard (Belli et al. 1994; Belli et al. 1999; Bernstein et al. 2001; Karp and Brockington 2005). Silver et al. (1986) were the first to recognize a simple but important fact—because validated nonvoters are the only respondents who actually did not vote, they are thus the only group at risk of over-reporting. Moreover, using the percentage of actual nonvoters who reported voting as the base allows us to avoid problems with the marginal distribution of voters and nonvoters in the sample (Silver et al. 1986). That said, we also present results that use the full sample.<sup>10</sup>

Figure 1a shows the percentage of over-reporters among validated nonvoters across our three conditions. The results are simply the proportion of cases in the respective category across conditions weighted using the standard KN weight. Both the pipeline condition and the subtle condition substantially reduced the rate of over-reporting. Whereas 24.8% of validated nonvoters over-reported in the control condition (ANES vote question), just over 20% did so in the subtle condition, and only 17.2% did so in the pipeline condition. We show the differences between each of the treatments and the control, along with 95% confidence intervals in Fig. 1b. The 7.6-percentage-point decrease in the rate of over-reporting in the pipeline condition is statistically significant ( $p=0.014$ , two-tailed) and substantively significant, representing a 31% decline in over-reporting. The decrease in the rate of over-reporting is especially noteworthy given that few studies have reduced over-reporting via question wording changes. Though the difference between the control and the subtle condition is substantively meaningful (a 4.8-point decrease), it is not statistically significant at conventional levels ( $p=0.123$ , two-tailed).

Importantly, our results for the pipeline condition hold even when we limit the analysis just to those who are actively registered to vote. Berent, Krosnick, and Lupia (2011) raise concerns with the quality of voter registration records, noting that much of the difficulty with voter validation involves locating individuals on the registration records. When we look just at those individuals that Catalist could identify as registered, we find a 7.6-percentage-point reduction ( $p=0.076$ , two-tailed) in over-reporting in the pipeline condition relative to the control. In other words, our results are not influenced by the assumption that the failure to locate an individual's registration record indicates that the individual did not vote.<sup>11</sup>

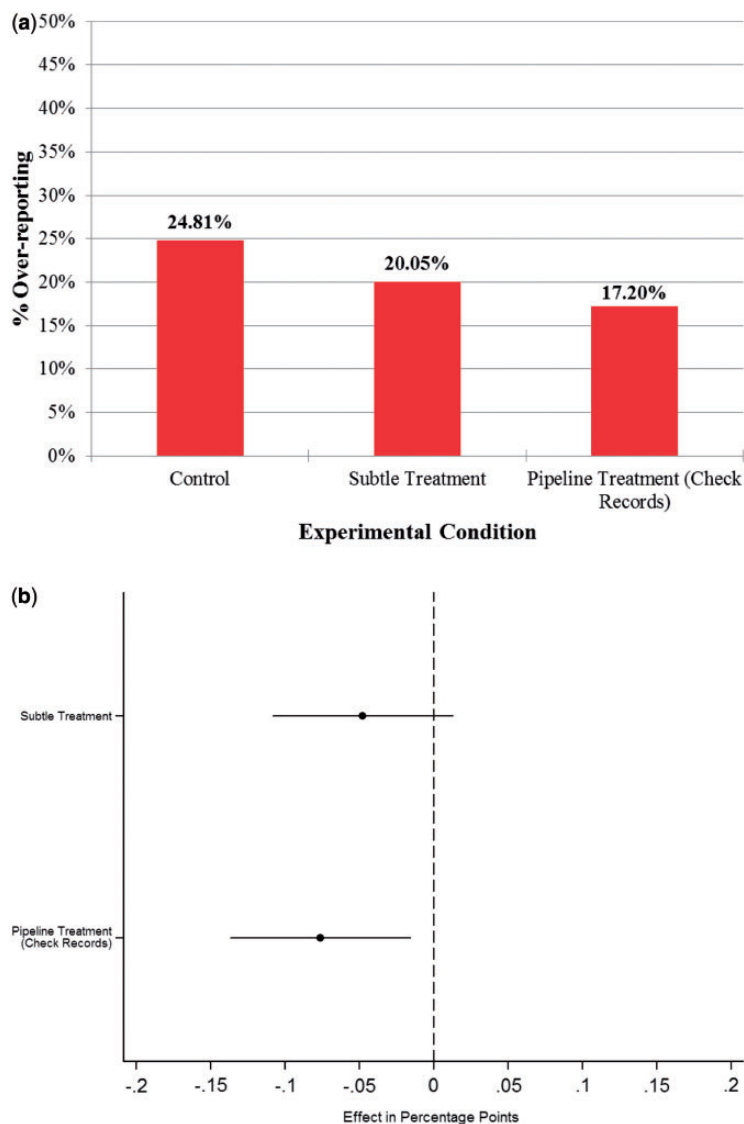
Moving now to the second portions of  $H_1$  and of  $H_2$ , Fig. 2a shows the accuracy with which each of the turnout measures captured the respondents' actual turnout. Here, we use the full sample rather than just the set of validated nonvoters. For example, in the control condition, 85.5% of the respondents gave answers that matched up with what we found in the voting records. Contrasting this with the subtle condition where 87.1% of responses matched up with the voting records, we see that there is a 1.6-percentage-point increase in the accuracy of the responses in the subtle condition compared to those reported in the control condition (Fig. 2b). Although this 1.6-percentage-point increase in accuracy is suggestive of the fact that the subtle measure may be more accurate than the control, the difference is not statistically significant at conventional levels ( $p=0.323$ , two-tailed). The pipeline condition, on the other hand, performs significantly better than the traditional ANES question, with accuracy increasing by 4.1 percentage points (Fig. 2b). In the pipeline condition, 89.6% of responses matched up with what we found in the voting records. The large substantive difference between the pipeline and control conditions is also statistically significant ( $p=0.012$ , two-tailed).

Overall, the results above show strong support for  $H_1$  and suggestive support for  $H_2$ . We now turn to the percentage of over-reporters by condition among all respondents. Figure 3a and 3b present these results. Figure 3a shows that the subtle condition and the pipeline condition reduce

dropped out (0.12%), compared to three in the pipeline treatment (0.35%) and four in the subtle treatment (0.48%). With respect to item nonresponse, one respondent refused to answer the control question (0.12%), one refused on the actual pipeline question (0.12%), and 0 refused on the subtle question (0%).

<sup>10</sup>See Figures 2a, 2b, 3a, and 3b. Researchers sometimes present the results among self-reported voters as well (e.g., Belli et al. 2001). For interested readers, we provide the results relating to self-reported voters in supplementary appendix 2. The substantive conclusions hold up with this group as the base.

<sup>11</sup>In keeping with Achen (1982), we view substantive significance as of greater importance than statistical significance. Here, our substantive results are nearly identical and the drop in precision is understandable given the smaller sample size.



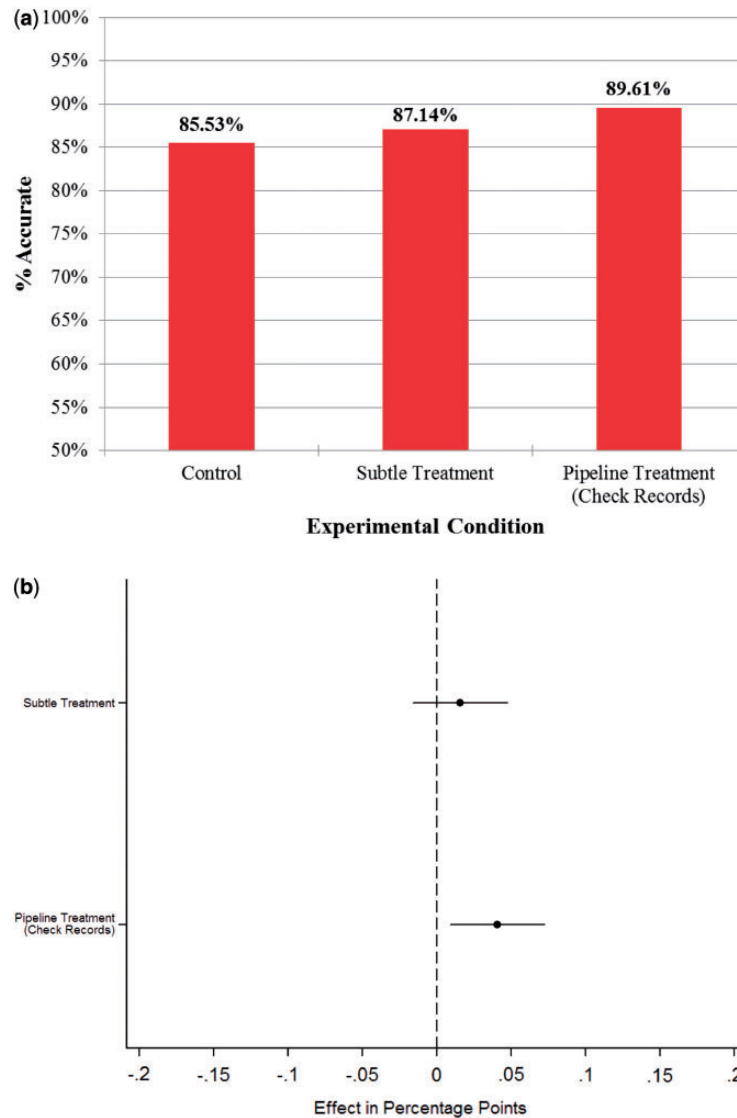
**Fig. 1** (a) Percentage of over-reporters among validated nonvoters in 2010 by experimental conditions.  $N=1028$ . Control versus subtle:  $p$ -value (two-tailed)=0.123; control versus pipeline:  $p$ -value (two-tailed)=0.014. (b) Effect of treatments on the rate of over-reporting among validated nonvoters in 2010 by experimental conditions (based on Fig. 1a), with 95% confidence intervals.

over-reporting relative to the control condition. That is, 8% of respondents over-reported in the pipeline condition, whereas 9.4% did so in the subtle condition and 11.8% did so in the control condition. Figure 3b presents the comparisons to the control condition. The 3.8-percentage-point difference between the pipeline condition and the control condition is statistically significant at  $p=0.008$  (two-tailed), whereas the 2.4-percentage-point difference between the subtle condition and the control is not statistically significant at conventional levels ( $p=0.104$ , two-tailed). Overall, the reduction in over-reporting in the at-risk group (i.e., validated nonvoters) was large enough to meaningfully reduce the rate of over-reporting across the entire sample, especially in the pipeline condition.

## 5 Conclusion

How might we reduce vote over-reporting? We offer a new approach that reduces the pressure individuals feel to say they voted when they actually did not. We argue that this pressure can

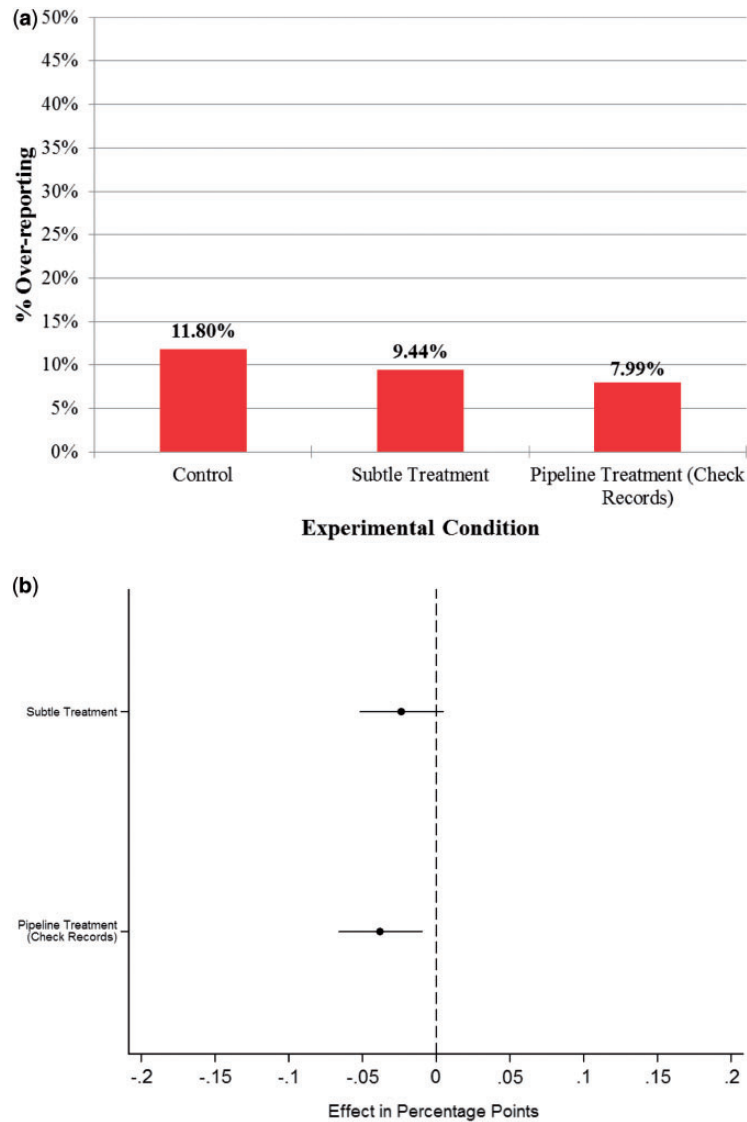




**Fig. 2** (a) Overall accuracy in 2010 across the sample by experimental conditions.  $N = 2515$ . Control versus subtle:  $p$ -value (two-tailed) = 0.323; control versus pipeline:  $p$ -value (two-tailed) = 0.012. (b) Effect of treatments on the rate of accuracy across the sample in 2010 by experimental conditions (based on Fig. 2a), with 95% confidence intervals.

be external, representing oneself to others as a voter, and internal, thinking of oneself as a voter. To combat this pressure, we developed new vote questions that derive from the pipeline approach. Our study is the first application of the pipeline approach in political science and the first application via a representative survey of adult American citizens.

The findings show that informing respondents that we will check their answers against public records substantially reduces vote over-reporting in surveys. The results place our pipeline question among the small group of questions that have been successful in reducing over-reporting. Importantly, all of our respondents were given the “excuse” answer choices, which themselves have been shown to reduce over-reporting; thus, the reductions in over-reporting we found were beyond whatever effects derive from these answer choices. Although we certainly have not solved the over-reporting problem, using the pipeline approach provides researchers interested in voting behavior with the opportunity for more accurate estimates of turnout and consequently more accurate tests of their theoretical expectations. Our question



**Fig. 3** (a) Percentage of over-reporters in 2010 across the sample by experimental conditions.  $N=2515$ . Control versus subtle:  $p$ -value (two-tailed)=0.104; control versus pipeline:  $p$ -value (two-tailed)=0.008. (b) Effect of treatments on the rate of over-reporting across the sample in 2010 by experimental conditions (based on Fig. 3a), with 95% confidence intervals.

wording can be used as is or as part of questions that build in other features thought to reduce over-reporting.

As a practical matter, these questions are easy to implement and need not significantly impact the cost of administering a survey. Although the vote validation suggested in the pipeline condition can be costly, one of the pipeline approach's strengths is that the researcher does not actually have to do the validation. However, for researchers concerned about deception, randomly sampling respondents to be validated is consistent with the language we use and will give each respondent an equal chance of having their vote validated and reduce financial costs.

As with any study, ours has limitations. One of the limitations is that we tested our new questions via just a single survey mode—a self-administered Internet questionnaire. Though political scientists are using this mode with increasing frequency, these questions should be tested using other modes as well. Our results along with previous research using the pipeline approach suggest that the pipeline treatment will be effective in those settings as well, given that

the external pressure to not be discovered as a liar will be greater in the presence of an interviewer. This suggests room for additional theorizing regarding the extent to which external and internal pressure work in different modes and how this might vary across different types of individuals. Given that we could not eliminate over-reporting, it is clear that not all are susceptible to the pipeline treatment. We think it is particularly important for work in this area to also develop questions that tap into citizens' attitudes about voting and the extent to which they identify as voters. Moreover, to provide more precise estimates, future research designs should block on key characteristics associated with over-reporting. Unfortunately, we did not have sufficient resources to examine how longer prompts designed to enhance memory along the lines of Belli et al. (1999) work in combination with the pipeline approach. It is also important to examine these questions in other elections.<sup>12</sup> This work is beyond the scope of this project, but we hope researchers investigate each of these issues.

As the financial cost of validation comes down with the sophistication of electronic databases, we encourage researchers to add validation efforts to their survey-based projects. We recognize that this is not always possible and that doing so can cause significant delays between the administration of the survey and the submission of the research for peer review, as the validation process depends on the availability of the voting records from official sources. Thus, we also encourage scholars to continue designing survey questions to reduce vote over-reporting.

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<sup>12</sup>We did not incorporate the pipeline question into recall of voting in the more distant 2008 election (see Weir 1975). However, we found evidence that suggests telling respondents we will check their records when we ask about the current election can spillover into responses about earlier elections. For additional details, see supplementary appendix 3.

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