Psychological Threat and Turnout Misreporting*

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Abstract

Direct survey measures of turnout often suffer from misreporting, particularly among non-voters. We investigate whether turnout misreporting in online surveys can be reduced by two new turnout question designs aimed at strengthening or buffering respondent's self-integrity against the perceived psychological threat of admitting non-voting. Drawing on evidence from survey experiments embedded in vote validated online surveys after the 2016 UK EU Referendum, we find that neither technique significantly improves turnout reporting accuracy. Our findings inform innovations in survey measurement of turnout and sensitive survey topics more generally.

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Finding out who votes in elections and who does not is important for a variety of actors, including political scientists, polling companies, and campaigners seeking to boost democratic participation. Post-election surveys are a potentially powerful resource, allowing researchers to compare turnout behaviour across individuals with different characteristics and attitudes. Yet due to a combination of sampling problems and respondent misreporting, post-election surveys routinely overestimate turnout, often by large margins. While sampling issues are relatively simple to address, the problem of misreporting – particularly non-voters' tendency to falsely report voting due to social desirability concerns, is more challenging (Burden, 2000).

Most existing research assumes that turnout misreporting is driven by respondents' impression management concerns and proposed a variety of turnout question designs and techniques aimed as assuaging such concerns to alleviate misreporting.[1] These include asking about turnout in self-complete, rather than interviewer administered surveys (e.g., Holbrook and Krosnick, 2010b) and different types of indirect question that mask the individual respondent's answer to the turnout question (e.g., Locander, Sudman and Bradburn, 1976; Holbrook and Krosnick, 2010a; Kuhn and Vivyan, 2018; Thomas et al., 2016). Most attempts, however, have enjoyed mixed success with respondents continuing to misreport turnout even in online surveys with no interviewer present.

A considerably smaller literature starts from the assumption that misreporting (especially in self-administered online surveys) is due to internal psychological mechanisms (e.g., Brenner, 2012). Drawing on the self-affirmation literature in psychology this paper theorizes that sensitive questions represent psychological threats triggering self-deceptive responses in order to protect the integrity of the self. Based on this literature we develop and assess two alternative question designs: one aimed at encouraging respondents to *self-affirm* before being asked the turnout question; the other mitigating the threat of the sensitive turnout question by *contextualizing* it within a series of low-cost political activities most respondents will have engaged in.

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[1]While researchers can sometimes tackle misreporting by verifying respondent turnout using official records, such 'validated vote' measures are often infeasible due to expense or inaccessibility of official records (Karp and Brockington, 2005).

Drawing on evidence from survey experiments embedded in vote validated online surveys after the 2016 UK EU referendum, we find that neither our self-affirmation exercise nor contextualisation of the turnout question significantly improved reporting accuracy across respondents compared to a standard direct question. Investigating the reasons for this, we find that respondents failed to properly engage with the self-affirmation exercise and that the contextualised question design significantly increased satisficing behaviour.

Our findings, which are based on full individual level validation of different approaches to turnout measurement, inform the development of improved survey questions on turnout by showing how two plausible approaches do not appear to successfully increase reporting accuracy. They also contribute to the broader literature on how to ask survey questions about sensitive topics more generally (Tourangeau and Yan, 2007). In particular, our research highlights the difficulties of using more complex question designs to reduce social desirability bias in online surveys. These question designs can face engagement problems and may increase respondent satisficing compared to standard direct questions (e.g., Kuhn and Vivyan, 2021).

The Psychology of Turnout Misreporting

Turnout misreporting is generally discussed in terms of social desirability. Social desirability refers to respondents' tendency to over-report socially desirable (e.g., voting, political interest) and under-report socially undesirable traits and behaviours (e.g., racist sentiments, criminal acts) (Tourangeau and Yan, 2007; Krumpal, 2013). By providing socially desirable rather than truthful answers, respondents induce so-called social desirability bias, defined as the difference between the actual attitude or behaviour of respondents and what they decide to report in the survey (Bradburn, Sudman and Blair, 1979). If there is a common understanding of the social norm across respondents this bias can be signed.

Voting is an admired and highly valued civic behaviour (e.g., Holbrook, Green and Krosnick, 2003), creating strong incentives for non-voters to deliberately misreport when

asked about their electoral participation. Consequently, self-reported turnout rates in post-election surveys regularly exceed official turnout rates by considerable margins. Using a sample of over 150 post-election surveys from four waves of the Comparative Study of Electoral Systems (CSES) database, Selb and Munzert (2013) find an average difference between survey and official turnout rate of over 12 percentage points and a maximal discrepancy of over 40 percentage points (i.e., Albania 2005). More importantly, validated vote studies provide clear evidence that turnout misreporting is not random: most misreporting is due to non-voters claiming to have voted rather than voters claiming not to have voted (e.g., Swaddle and Heath, 1989; Mellon and Prosser, 2017).

Cognitive psychological research on social desirability suggests that misreporting is a controlled, deliberate, and motivated process that is at least partially under the respondent's control (Holtgraves, Eck and Lasky, 1997; Holtgraves, 2004). Misreporting is therefore not an automatic mental process happening completely outside a respondent's conciousness, but requires a cognitive effort to edit ones response to a question perceived to elicit answers that are socially undesirable (Krumpal, 2013, 2030). The psychology literature distinguishes two reasons for social desirability bias (Booth-Kewley, Larson and Miyoshi, 2007; Paulhus, 1984, 2002): *impression management*, which is outward oriented behaviour towards another individual (e.g., the interviewer or others who may observe recorded responses); and *self-deception*, which is inward-oriented behaviour to ensure self-integrity or engage in self-promotion.

The vast majority of research on reducing turnout misreporting – and misreporting on sensitive topics more generally – has focused on ameliorating impression management concerns though either adapting the data collection mode (i.e., whether a survey is interviewer- or self-administered) or the turnout question design. While there is some evidence that respondents admit to socially undesirable activities (e.g., illicit drug use, alcohol problems, risky sexual behavior) more often in self- compared to interviewer-administered surveys (Krumpal, 2013, 2033-2034), the empirical evidence regarding mode and turnout misreporting is mixed (e.g., Holbrook and Krosnick, 2010b; Selb and Munzert, 2013). With regard to question design a variety of attempts have been made, includ-

ing 'forgiving' question wording (Fowler, 1995, 28-45), 'face-saving' answering options (Belli et al., 1999), and various so-called indirect question techniques (e.g., randomized response (Warner, 1965) or item count technique (Miller, 1984)), which mask the respondent's answer, so that neither the interviewer nor the analyst can infer an individual's response. While 'forgiving' question wording has been found to be ineffective at reducing misreporting (Abelson, Loftus and Greenwald, 1992; Holtgraves, Eck and Lasky, 1997; Persson and Solevid, 2014) and indirect question techniques have a mixed performance (e.g., Locander, Sudman and Bradburn, 1976; Holbrook and Krosnick, 2010a; Thomas et al., 2016; Kuhn and Vivyan, 2018), 'face-saving' answer options are successful at reducing misreporting (Belli et al., 1999; Belli, Moore and VanHoewyk, 2006; Persson and Solevid, 2014; Zeglovits and Kritzinger, 2014), but their impact is moderate at best, leaving a considerable amount of misreporting.

Far less research has been done on mitigating self-deception motivation for turnout misreporting. In a series of papers Brenner (2011, 2012) and Brenner and DeLamater (2016) argue based on identity theory that overreporting of normative desirable behaviour, such as voting, is primarily motivated the ideal self. Influenced by the desire for consistency between the ideal and actual self, respondents having failed to engage in the desired behaviour pragmatically re-interpret the survey question to be one about identity rather than behaviour. He shows empirically that a strong political identity among non-voters (unlike voters) strongly correlates with misreporting (Brenner, 2012) and that collecting information on sensitive behaviour through non-directive journals or short messages significantly reduces overreporting (Brenner and DeLamater, 2016). While promising, this theoretical framework does not offer a survey-based solution to self-deception. Below we draw on the self-affirmation literature, a related psychological theory on maintaining self-integrity, to develop two distinct approaches on how to reduce misreporting due to self-deception.

Psychological Threats and Self-Integrity

Key to understanding why some non-voters misreport is psychological threat, the perception of an environmental challenge to the adequacy of the self (Cohen and Sherman, 2014, 335). Psychological threats represent an inner alarm that arouses vigilance and the motive to reaffirm the self (Steele, 1988). Major life events, such as losing one's job or receiving a bad medical diagnosis, can obviously give rise to psychological threats, but the self-integrity motive is so strong that even mundane events, such as fans witnessing the defeat of your favourite sports team or partisans encountering evidence that challenges their political views, can trigger a defensive response to maintain self-integrity (Cohen and Sherman, 2014, 335).

Self-integrity is "a sense of global efficacy, an image of oneself as able to control important adaptive and moral outcomes in one's life" (Cohen and Sherman, 2014, 336). Threats to this image evoke defensive mechanisms to reaffirm the self. Three points about the concept of self-integrity are worth highlighting. First, the motive is to maintain a global narrative of oneself as a moral and adaptive actor (e.g., being a good person), not a specific self-concept (e.g., being a good student). Over time, people may commit themselves to a particular self-definition (e.g., teacher), but the self can draw on a variety of roles and identities to maintain its integrity. This flexibility ensures adaptation which is especially important in dynamic social systems (Dunning, 2005). Second, the motive of self-integrity is not to be superior or excellent, but to be good enough, as the term adequacy implies. Self-integrity therefore only requires a sense of being competent enough in a constellation of domains to feel that one is a good person morally (Cohen and Sherman, 2014, 336). Finally, the motive for self-integrity is not to esteem or praise oneself, but rather to act in ways worthy of praise (Cohen and Sherman, 2014, 336). As Smith (1759/2011) highlights, people want not simply praise but to be praiseworthy, not simply admiration but to be admirable, according to the values of their group or culture. Rewards and praise are therefore secondary to opportunities for people to manifest their integrity through meaningful acts, thoughts, and feelings.

In sum, some non-voters may perceive the direct turnout question as a psychological

threat, given that voting is a strong and widely shared social norm (Holbrook, Green and Krosnick, 2003; Karp and Brockington, 2005; Bryan et al., 2011). If so, then this threat to their self-integrity may trigger the need to reaffirm the self by reinterpreting the turnout questions to be about self-perception or identity in order to provide the desired response. Below we outline two distinct ways to address the psychological threat of the turnout question within the context of a post-election survey.

Self-Affirmation and Contextualisation

We consider two ways to reduce the psychological threat of the turnout question: (1) by affirming the self before threat exposure and (2) by contextualizing the threat to minimize its impact.

Affirming the self in defence of a threat: The first approach draws on the concept of self-affirmation from social psychology (see Cohen and Sherman, 2014, for a recent review). Self-affirmation is an act that manifests one's adequacy and thus affirms one's sense of global self-integrity (Steele, 1988). Although big accomplishments (e.g. winning a sports competition) can affirm one's sense of adequacy, small acts (e.g., reflecting on an important value) can do so as well. Moreover, what constitutes a big or small act is often highly subjective (Yeager and Walton, 2011).

Self-affirmation mitigates psychological threats by reaffirming and expanding an individual's view of their self, which in turn is expected to mitigate misreporting to sensitive questions. Under regular circumstances, psychological threats trigger "defensive responses, including the self's spin control, such as denying responsibility for failure" (Cohen and Sherman, 2014, 340). When self-affirmed, individuals view stressors in the context of the bigger picture, commanding less vigilance and self-protective actions (Schmeichel and Vohs, 2009; Wakslak and Trope, 2009). When the self is affirmed, psychological threats have less impact on the psychological well-being and because of that change the way individuals approach them (Sherman et al., 2013).

In sum, self-affirmation buffers against a threat, which enables individuals to better

marshal their cognitive resources to meet a task and reduces defensive responses. Based on this logic, we may expect reaffirmed non-voters to misreport their turnout at lower rates than non-reaffirmed non-voters. In contrast, reaffirmed voters should misreport at the same (low) rate as non-reaffirmed voters, as actual voters have no reason to perceive the turnout question as a threat and therefore to misreport.

To affirm respondents' self, we follow existing experimental research and propose embedding a brief self-affirmation exercise immediately before the standard turnout question. Such an exercise asks respondents to reflect on an important characteristic or value to them and has been shown to significantly alter the response to psychological threats, both in laboratory conditions (Binning et al., 2010; Harris et al., 2014; Binning et al., 2015) and online surveys (Epton et al., 2014; Nyhan and Reifler, 2019).

Mitigating a threat through contextualisation: Instead of strengthening the self, our second approach for reducing turnout misreporting seeks to weaken the psychological threat of the turnout question by contextualising it. Rather than asking about turnout directly, respondents are asked whether they voted in the context of a more general list of low-cost political activities (e.g., have you discussed the election with friends or family, have you heard a news item on the election). Listing turnout near the bottom in such a list allows non-voters to demonstrate to themselves that they have engaged in several other political activities, making the admission of not having voted less defining and threatening. Hence, similar to self-affirmation, contextualisation is intended to act as a buffer against the turnout question threat, reassuring "individuals that they have integrity and that life, on balance, is okay" (Cohen and Sherman, 2014, 339) even if they failed to fulfil their civic duty and vote.

Next we describe the self-affirmation exercise and the contextualisation question in more detail, together with our design to assess their effectiveness at reducing misreporting.

Research Design

We run two survey experiments to assess whether a self-affirmation exercise or a contextualised turnout question successfully reduce misreporting compared to a traditional direct turnout question. Both were embedded in online surveys fielded by YouGov to a nationally representative sample of the British adult population. Testing our turnout question designs in online surveys is practically relevant since academic research on electoral behaviour (including large-scale election studies such as the British Election Study) is increasingly conducted via online surveys. Both experiments focused on turnout at the UK EU referendum on June 23rd 2016. To limit memory error concerns, all fieldwork for both studies was conducted in the month following the referendum.

Study 1 Design

Study 1 was fielded June 30th - July 4th 2016 to a total of 4,000 respondents. The design of the treatments was preregistered with Evidence in Governance and Politics (registration number 20160617AA).[2] Respondents were randomly assigned with equal probability to one of the five possible experimental conditions—*direct question, self-affirmation treatment, self-affirmation placebo, norm-compliant contextualisation* and *norm-defiant contextualisation*—which involved the following.[3]

***Direct Question* Condition** Respondents in this 'control' condition were asked about their referendum turnout via a traditional direct question:

```
Talking with people about the recent EU referendum on June 23th,
we have found that a lot of people didn't manage to vote.  How about
you, did you manage to vote in the EU referendum?

   • Yes
   • No
```

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[2]We perform all analysis laid out in the pre-registered design for Study 1. However, we also perform additional analysis that: exploits the measures of respondent validated turnout that we were subsequently able to collect after receiving additional funding (we did not anticipate having access to validated vote measures in the pre-registered design); probes the mechanisms that may have led to the failure of the two designs to reduce turnout misreporting.

[3]Randomisation checks for the self-affirmation experiment and contextualisation experiment embedded in study 1 are provided in Appendix Tables B.3 and B.4.

- Don't know

This is the standard direct question format used in the British Election Study, which already incorporates a 'forgiving' introduction intended to reduce sensitivity. 817 Study 1 respondents were assigned to this condition.

Self-Affirmation Treatment **Condition** The 797 Study 1 respondents randomly assigned to this condition were asked to undertake a *self-affirmation treatment* exercise before being asked the above direct referendum turnout question. The design of the self-affirmation exercise is based on self-affirmation manipulations previously implemented in online surveys in political science (Nyhan and Reifler, 2019) and in social psychology research (Epton et al., 2014), which in turn draw on classic self-affirmation interventions designed for the laboratory setting (e.g., Cohen, Aronson and Steele, 2000). The first item in the exercise provides the respondent with a list of desirable characteristics or values and asks them to pick the one most important to them (for full item wording see Appendix A). The second item in the exercise then asks:

```
Please take a few moments to describe a personal experience in which
[value selected in previous question] was especially important to
you and made you feel good about yourself. Don't worry about spelling,
grammar, or how well written your answer is.
```

Respondents were given an open text box to record their response and were informed that they would be able to move onto the next survey item after 30 seconds had passed. The latter design feature was intended to ensure at least moderate engagement with the task.

We stress that the answers respondents record in the text box are not of primary interest here (although we later examine them as a form of manipulation check). Rather, self-affirmation theory suggests that having respondents pause and reflect upon an act that demonstrates a positive value or characteristic that they value, strengthens their sense of self-integrity before they go on to answer the direct turnout question. One potential issue with the reflective task is that compliance – i.e. proper engagement with the essay task might be limited. By making the essay task about a concrete episode we

have tried to guard against this as far as possible within an online survey, the increasingly dominant mode of post-election surveys.

***Self-Affirmation Placebo* Condition** Although some self-affirmation experiments in the psychology literature do not include one (McQueen and Klein, 2006), including a *self-affirmation placebo* condition helps rule out alternative mechanisms, such as the cognitive effects of undertaking the value selection or the reflective writing task. 763 Study 1 respondents were randomly assigned to this condition, which differs only slightly from our self-affirmation treatment condition. It again asks respondents to select values from a list and write a short passage, but in this case respondents are asked to select the value that is *least* important to them and to write a few words about why *another person* may find those values important. Thus, the placebo task does not encourage self-reflection in the same way as the actual self-affirmation treatment and should therefore have not self-affirmation effect.

***Norm-compliant Contextualisation* Condition** The 800 Study 1 respondents assigned to this condition were not asked the direct turnout question at all, but were instead asked about their turnout via what we call a *norm-compliant contextualisation* question. In this question respondents are asked to say which of a number of referendum-related activities they have engaged in. This allows respondents to reassure themselves that they did engage in a number of low-cost referendum-related activities, and may therefore enable them to feel less defensive about a failure to vote. The specific wording is as follows:

> ```
> The next question deals with the recent EU referendum on June 23rd.
> Here is a list of things that some people did and some people did
> not do during the referendum campaign or on polling day.  Which of
> these things did you do?  Please select as many as apply.
> ```
>
> - ```Discussed the referendum with family and friends```
> - ```Read a referendum campaign leaflet```
> - ```Watched a news story about the referendum campaign```
> - ```Participated in an online conversation about the referendum```
> - ```Watched a referendum debate on TV```

- Voted in the referendum
- Put up a leave or remain poster in my window or garden
- None of the above
- Don't know

Norm-defiant Contextualisation **Condition** The 823 Study 1 respondents assigned to this condition were again asked about their referendum turnout via a contextualised question. But in this *norm-defiant contextualisation* condition three of the norm-compliant items listed in the above contextualisation question are replaced with 'norm-defiant' political activities. This is intended to act as a cue to respondents that defying civic norms concerning political activities is okay, and not uncommon in society, thus aiming to further reducing the psychological threat of admitting failing to vote.[4]

> The next question deals with the recent EU referendum on June 23rd.
> Here is a list of things that some people did and some people did
> not do during the referendum campaign or on polling day. Which of
> these things did you do? Please select as many as apply.
>
> - Discussed the referendum with family and friends
> - Threw away some referendum campaign leaflets without reading
>   them
> - Watched a news story about the referendum campaign
> - Criticised a politician online
> - Avoided watching a referendum debate on TV
> - Voted in the referendum
> - Put up a leave or remain poster in my window or garden
> - None of the above
> - Don't know

Study 2 Design

Study 2 was fielded July 18th - July 21st 2016 to a total of 6,634 respondents and was primarily intended as a follow-up to further test the mechanisms underlying contextualisation question effects. In this study, respondents were randomly assigned to one of *four*

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[4]Kuhn and Vivyan (2018) find that a list experiment containing norm-defiant control items like these generates turnout estimates closer to true population turnout than a direct question.

conditions.[5] Three of these replicated conditions included in Study 1: the *direct question*, *norm-compliant contextualisation* and *norm-defiant contextualisation* conditions. The fourth condition, which we label *low-prevalence contextualisation*, was not included in Study 1.[6] It involved the following.

***Low-prevalence contextualisation* condition.** Respondents again received a contextualised turnout question which embedded voting in among a number of other political activities (and in the same position on the list of items as for the norm-compliant and -defiant contextualisation questions). However, in this condition the non-turnout political activities included in the list were all *low prevalence* activities which very few respondents would truthfully be able to report having engaged in. Thus, the question design maintains the key structural features of the norm-compliant and norm-defiant contextualisation questions, but should not mitigate the psychological threat of the turnout question, as it does not provide respondents with the opportunity to reaffirm themselves as overall 'good' citizens, but happened to have failed to vote. To the extent that the self-integrity mechanism underlies the contextualisation effects observed above, we should observe that this low prevalence treatment elicits a *smaller* reduction in self-reported turnout than the norm-compliant and norm-defiant contextualisation questions.

The specific wording of the question was as follows:

```
The next question deals with the recent EU referendum on June 23rd.
Here is a list of things which some people did and some people did
not do during the referendum campaign or on polling day.  Which of
these things did you do?  Please tick as many as apply.
```

- Attended a referendum campaign event in person
- Donated money to one of the referendum campaigns

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[5]Randomisation checks for the contextualisation experiment embedded in study 2 are provided in Appendix Table B.5.

[6]Study 2 respondents were assigned to the four treatment conditions with *unequal* probability: the randomisation weight assigned to the *direct question* condition was 0.1, with 0.3 weight assigned to each of the three contextualisation conditions. We gave more weight to the three contextualisation conditions in this experiment to increase the power of comparisons between the *low prevalence contextualisation* and remaining contextualisation conditions, since it is these comparisons that enable us to assess whether self-affirmation through ticking low-cost political activities drive contextualisation effects on turnout misreporting. The overall number of Study 2 respondents receiving the *direct question, norm-compliant contextualisation, norm-defiant contextualisation* and *low-prevalence contextualisation* conditions was, respectively, 662, 2,000, 1,993 and 1,979.

- Helped organise a referendum debate in my local community
- Volunteered for one of the referendum campigns
- Wrote a letter about the referendum to a local or national newspaper
- Voted in the referendum
- Put up a leave or remain campaign poster in my window or garden
- None of the above
- Don't know

Measuring True Turnout

In order to measure the *accuracy* of individual respondents' self-reported turnout in our various experimental treatments, we collected data on the true EU Referendum turnout of a subset of respondents. Validating turnout of any given respondent in the UK requires visiting the office of the Local Authority in which the respondent resides in person to match name and address to paper-based marked electoral registers. With a limited budget and faced with a large number of geographically dispersed Local Authority offices, each with information on relatively few study participants, we opted to inspect the marked registers of a convenience sample of Local Authorities which tended to be clustered in more urban areas, and could thus be accessed quickly from a single base in that urban area. We inspected marked registers in 66 Local Authorities, spread across ten of the eleven non-Northern Irish UK regions. Across these authorities, we attempted to validate the votes of 2,097 of all Study 1 and 2 respondents. However, we did not obtain 'definitive' validated turnout measures for all of these respondents: in some cases we did not find the name of a survey respondent recorded on the register for the address at which they reported living; in other cases we could not locate the given address of a respondent on the register. We thus obtained definitive true turnout measures for 1,797 of these respondents.[7]

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[7]See Appendix A.3 for additional details of vote validation process (including how the anonymity of respondents was protected) and outcomes.

Methods

In our analysis, we separately study the self-affirmation and contextualisation treatments described above, each versus the *direct question* condition. Below we describe our data, main outcomes, regression models, and expectations.

Data: Both the self-affirmation and contextualized turnout questions are intended to change the response of non-voters and are assumed to have no effect on voters, as they adhered to the social norm and therefore have no reason to perceive the turnout question as a threat. However, we empirically examine the overall effects of these question designs on turnout misreporting across both non-voters and voters (as well as examining effects specifically among non-voters and specifically among voters) as our main aim is not to test self-affirmation theory but rather to assess whether these question designs based on the self-affirmation framework significantly improve self-reported measures of turnout in a typical online post-election survey. Given the greater relative frequency of voters compared to non-voters in most post-election survey samples, even small decreases among voters' response accuracy can overwhelm any accuracy improvements among non-voters, and would thus reduce the overall accuracy of the alternative turnout questions designs compared to the direct question (Kuhn and Vivyan, 2021).

To assess the effect of the self-affirmation question on turnout misreporting, we focus on data from Study 1 and subset to respondents in either the *direct question*, *self-affirmation treatment* or *self-affirmation placebo* conditions. To study the effects of contextualisation on turnout misreporting, we subset Study 1 data to those respondents in either the *direct question*, *norm-compliant contextualisation* or *norm-defiant contextualisation* conditions. We then pool the resulting data with our Study 2 data, which contains observations from the same three treatment conditions plus the *low prevalence contextualisation* condition. (We show in Appendix Table B.9 that treatment effects estimated below do not differ significantly across the two studies.)

Outcomes: Our analysis focuses on two main outcomes: *self-reported turnout* and *accuracy*. Self-reported turnout (y_i) is a binary indicator equal to one if respondent

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$i \in \{1, \dots, N\}$ reports that they voted in the EU Referendum. This outcome is available for all respondents in our samples. Accuracy ($I\{y_i = y_i^*\}$) is a binary indicator equal to one if respondent i's self-reported turnout matches their true turnout behaviour, y_i^*. Hence, it is only available for the subset of validated respondents.

Regression Models and Expectations: We run separate linear probability models with robust standard errors to assess the effectiveness of our alternative question designs relative to the direct question, which is our baseline. To study the effect of self-affirmation on turnout misreporting we estimate the following model:

$$\text{Outcome}_i = \alpha + \beta_1 \text{SelfAffirmationTreatment}_i + \beta_2 \text{SelfAffirmationPlacebo}_i + \epsilon_i, \quad (1)$$

where Outcome_i denotes either of the two binary outcome indicators defined above, $\text{SelfAffirmationTreatment}_i$ and $\text{SelfAffirmationPlacebo}_i$ are binary indicators for the treatment group to which respondent i is assigned, and ϵ_i is the error term. In this equation, β_1 and β_2 capture the effect of the *self-affirmation treatment* and *self-affirmation placebo* relative to the *direct question*, and $\beta_1 - \beta_2$ denotes the difference between the effect of the treatment and the placebo relative to the direct question. If self-affirmation reduces turnout misreporting we would expect β_1 to be negative, β_2 zero, and $\beta_1 - \beta_2$ to be negative when the outcome variable is self-reported turnout. When the outcome variable is accuracy, we would expect β_1 to be positive, β_2 zero, and $\beta_1 - \beta_2$ to be positive. The magnitude of all coefficients should be greater when we subset to true non-voters, and should be zero when we subset to true voters.

To study the effects of contextualisation on turnout misreporting we estimate the following model:

$$\text{Outcome}_i = \alpha + \beta_1 \text{NormCompliantContextualisation}_i + \beta_2 \text{NormDefiantContextualisation}_i$$
$$+ \beta_3 \text{LowPrevalanceContextualisation}_i + \epsilon_i, \tag{2}$$

where Outcome_i denotes either of the two binary outcome indicators defined above, $\text{NormCompliantContextualisation}_i$, $\text{NormDefiantContextualisation}_i$, and $\text{LowPrevalanceContextualisati}$ represent the treatment indicators for the various contextualisation questions, and ϵ_i is the error term. If contextualisation is effective at reducing misreporting, then β_1 and β_2 will be negative (positive) and β_3 indistinguishable from zero when the outcome is self-reported turnout (accuracy). In particular, we expect β_1 and β_2 to be positive and β_3 to be indistinguishable from zero among verified non-voters, while all coefficient estimates should be zero for true voters. Finally, if $\beta_1 - \beta_3$ and $\beta_2 - \beta_3$ are negative (positive) when the outcome is self-reported turnout (accuracy), then this provides evidence of the self-affirmation mechanism outlined above.

Results

Self-Affirmation

Figure 1 reports the results from Equation 1 (for estimates with demographic and political controls see Appendix Table B.6). The left-hand panel shows the coefficient estimates for β_1, β_2, and $\beta_1 - \beta_2$ for self-reported turnout. The coefficient estimates are not in line with our expectations: there is no significant difference in the estimated turnout rate comparing the self-affirmation treatment to either the direct question or the self-affirmation placebo. The sign of the estimated differences are also often in the wrong direction (i.e., positive).

The right-hand panel of Figure 1 displays the estimated treatment effects on accuracy for the validated sample, the subsample of validated voters, and the subsample of validated non-voters. In line with expectations, for the validated sample and the subsample

Figure 1: Effect of Self-Affirmation Treatment and Placebo on Self-Reported Turnout and Accuracy
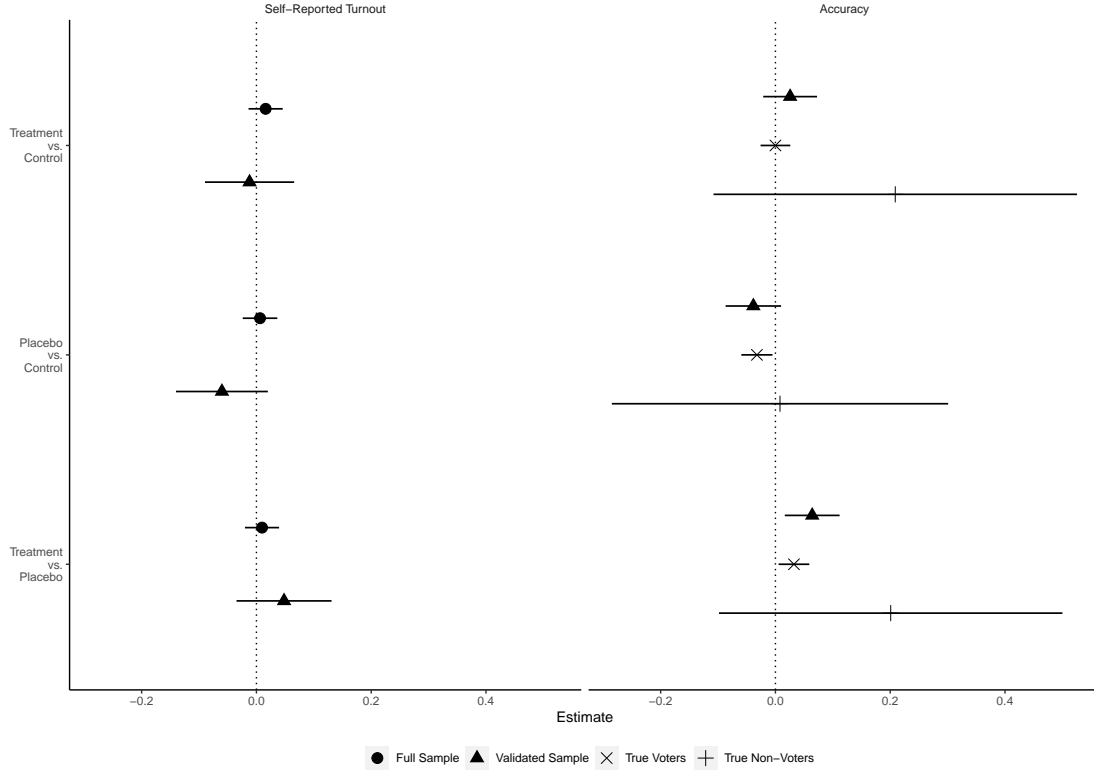
Notes: Based on Equation 1, the figure depicts regression estimates (and 95% confidence intervals) for the effects of different self-affirmation treatment conditions. The dependent variables are self-reported turnout (left panel) and whether an individual's response matches their validated turnout (accuracy, right panel). Estimates in the left panel are reported for the full sample and for the validated sample (i.e., only those respondents for which true turnout was measured). In the right panel estimated are reported for the validated sample, as well for the subsamples of true voters and true-non voters.

of validated non-voters, we obtain positive point estimates for the difference in accuracy comparing the self-affirmation treatment to both the direct question and the placebo. However, the estimated difference in accuracy between the treatment and direct question control (β_1) is rather small (i.e., 2 percentage points) and not statistically significant. Furthermore, the placebo seems to have significantly reduced reporting accuracy compared to the direct question, especially among true voters. This detrimental effect of the placebo on true voters rather than the improvement of accuracy among non-voters under the treatment largely accounts for the positive and statistically significant estimated difference in accuracy between treatment and placebo ($\beta_1 - \beta_2$). Thus, the results in Figure 1 suggest that the self-affirmation design does not reduce turnout misreporting compared to a traditional direct question.

Why did the self-affirmation treatment fail?

To assess why the self-affirmation treatment failed we start by looking at a series of manipulation checks to assess whether our self-affirmation exercise had the intended psychological effects on self-integrity.

Following the self-affirmation treatment, placebo, and turnout question we presented all respondents with three questions to gauge (1) their feeling towards themselves, (2) their ability to overcome challenges, and (3) their sense of completeness (see Appendix A questions A3/B5/C5 and A4/B6/C6 for the full wording and answer categories). If our self-affirmation treatment had strengthened respondents' self-integrity, then we ought to observe that treated respondents have an improved emotional outlook compared to those respondents in the control or placebo group.

Figure 2 presents the results from our three manipulation checks. Across both the full sample and validated sample, treated respondents do not seem to have a more positive feeling towards themselves, do not rate their ability to overcome challenges higher, and do not have a greater sense of completeness than respondents in either the control or placebo group. If anything the opposite is true (especially when comparing the treatment to the control group). In sum, the evidence suggests our self-affirmation exercise failed to strengthen self-integrity.

Why did the self-affirmation treatment fail to strengthen respondents self-integrity? We investigate two potential reasons: first, the treatment might have failed because of respondents' *lack of engagement* with the self-affirmation task; second, it might have failed due to respondents' *inappropriate engagement* with the task.

We look at the amount of time spent and the number of words written by respondents in the treatment and placebo group to assess the *lack of engagement* explanation. Figure 3 presents density plots of the number of words used and time taken (in seconds, logged to reduce outlier sensitivity) to complete the treatment and placebo task.

The data reveals that respondents' engagement with the self-affirmation treatment and placebo was limited: on average respondents wrote 13.5 words and spent 110 seconds on the self-affirmation, including the 30 second block during which they were pre-

Figure 2: Manipulation Checks
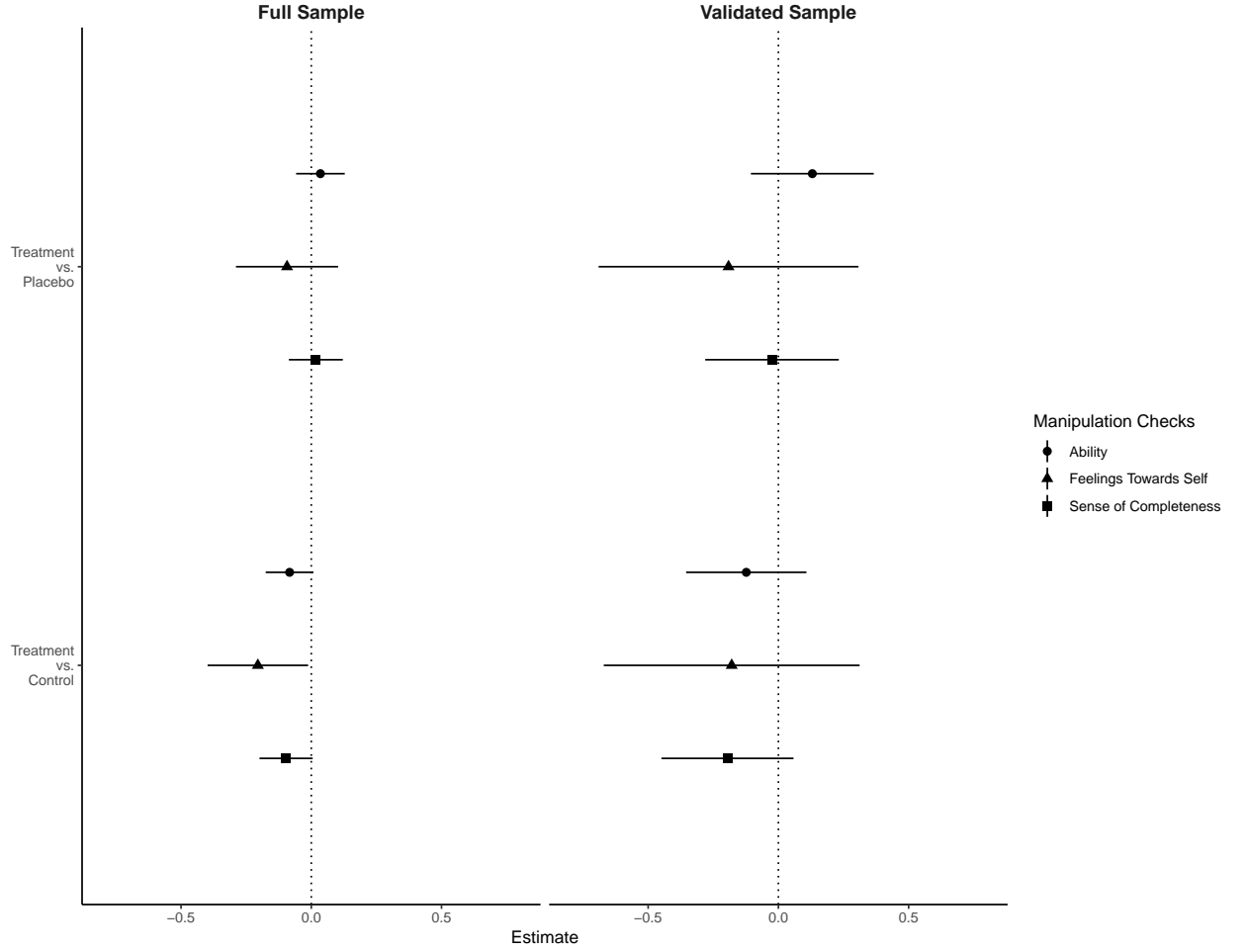
Notes: The figure reports estimated effects (and 95% confidence intervals) of self-affirmation interventions on our three manipulation checks for the full and validated samples. The dependent variables *Ability*, *Feelings Towards Self*, *Sense of Completeness*, measure the emotional state of our respondents in keeping with the expectations set out in the self-affirmation literature.

vented from proceeding to the next survey question.[8] The low level of engagement of our respondents is also apparent when comparing them to respondents in other studies engaging in similar self-affirmation exercises. Treatment groups in those exercises wrote an average of 67 (Creswell et al., 2013, 3), 248 (O'Brien, 2017, 47), and 170 words (Harris, 2017, 125), which is between 5 and 18 times the amount our respondents wrote. Hence, the data suggests that respondents' absolute and relative lack of engagement with the

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[8]Treated respondents wrote slightly more (on average 3 words more) and spent slightly longer on the exercise than respondents in the placebo condition, but overall their rate of engagement is similar and average differences are largely driven by outliers (especially regarding time spent).

Figure 3: Response length to self-affirmation treatment and placebo
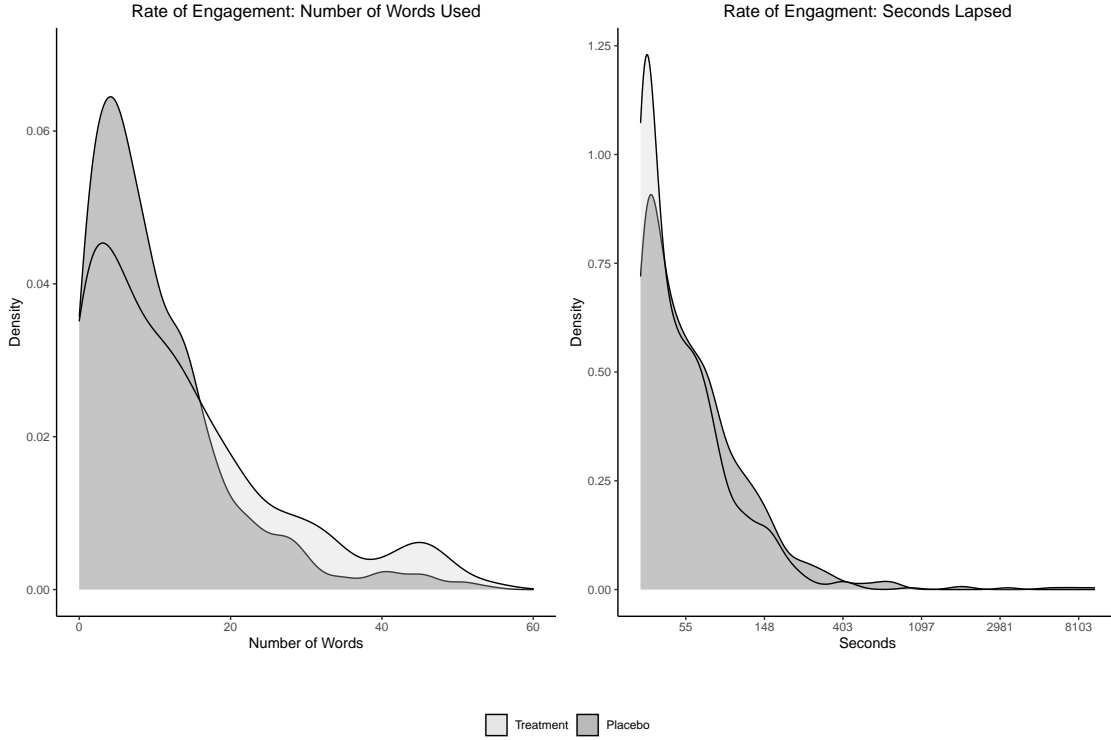
Notes: The figure shows the distribution of total words used in (left panel) and logged number of seconds spent on the treatment and placebo self-affirmation tasks by respondents.

self-affirmation exercise may be one reason for why the treatment failed.

An alternative explanation for why our treatment failed is that respondents *inappropriately engaged* with the self-affirmation task. In the self-affirmation treatment respondents were encouraged to describe a personal experience in which their most cherished characteristic or value was important to them and made them feel good about themselves. This exercise aimed to elicit positive feelings and thereby strengthen the self. Respondents in the placebo group, however, were asked to write on a characteristic or value they considered least important to them and why others might find it important. While holding the act of writing constant, the placebo task should not elicit any positive feelings and therefore have no effect on respondents' self-integrity. A literature in psychology (e.g., Pennebaker and Chung, 2007; Pennebaker, Mayne and Francis, 1997; Hamilton-West and Quine, 2007; Danner, Snowdon and Friesen, 2001; Kahn et al., 2007) provides evidence that the use of positive words is associated with positive feelings. Consequently, if respon-

dents engaged appropriately with the treatment, we should see a higher use of positive words among treated respondents compared to respondents in the placebo group.

To explore whether there is a difference in positive and negative words between the treatment and placebo group, we undertake a dictionary-based sentiment analysis using *Bings* sentiment lexicon and compare the proportion of positive and negative words across the groups. Contrary to our expectation, we find that the treatment group's responses included on average 13.5 percentage points less positive words than the placebo group[9]. This provides evidence that the treatment failed because it did not elicit positive feelings which would have in turn strengthened self-integrity.

In sum, our analysis suggests that self-affirmation most likely failed to reduce turnout misreporting due to low and inappropriate engagement of respondents with the self-affirmation task. Respondents did not spend enough time and did not write enough on the task. Moreover, the lack of positive words in their responses compared to the responses of the placebo group suggest that they did not engage appropriately with the exercise in order for it to elicit the positive sentiments necessary to strengthen the self.

Contextualisation

Next we consider the results of our contextualisation treatments. Figure 4 presents the effect of the three contextualisation treatments compared to the direct turnout question for self-reported turnout and accuracy (see Appendix Table B.8 for the underlying regression table and estimates including demographic and political controls).

The estimates for the norm-compliant and -defiant contextualisation treatments in the left-hand panel are in line with our expectations: they reduce self-reported turnout by about 10 percentage points compared to the direct question, and the effects are significant.[10] However, in contrast to our expectations the low-prevalence treatment also substantially and significantly reduces self-reported turnout compared to the direct ques-

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[9]See Appendix Figure B.1 for the difference estimates and 95% confidence interval.

[10]This reduction in self-reported turnout leads to a significantly lower estimated turnout rate, which is significantly closer to the official turnout rate (i.e., 72.2%). This pattern is repeated across the 11 GB regions, as shown in Appendix Figure B.2, showing that the norm-compliant and -defiant contextualisation questions seem to provide better aggregate turnout estimates.

Figure 4: Effect of contextualisation treatments on self-reported turnout and accuracy
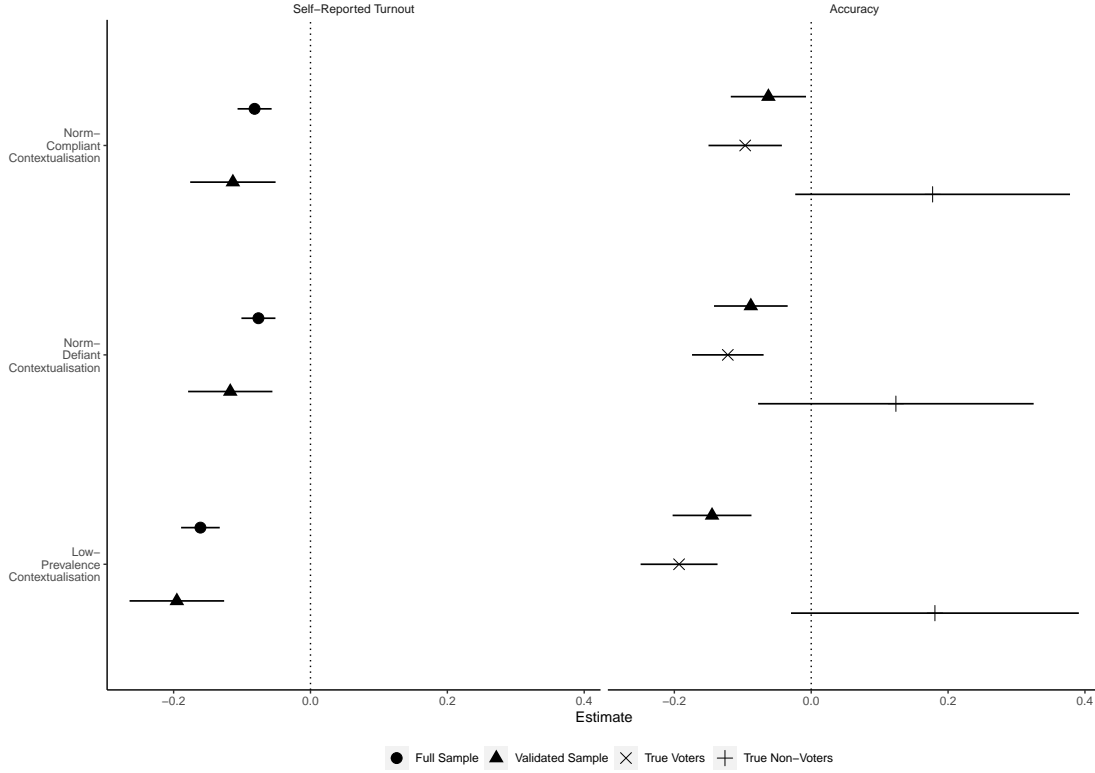
Notes: Based on Equation 2, the figure depicts regression estimates (and 95% confidence intervals) of the effects of turnout contextualisation treatment conditions. The dependent variables are self-reported turnout (left panel) and whether an individual's response matches their validated turnout (accuracy, right panel). Estimates in the left panel are reported for the full sample and for the validated sample (i.e., only those respondents for which true turnout was measured). In the right panel estimates are reported for the sample of validated respondents, as well as separately for validated voters and validated non-voters.

tion.

Evidence against our expectations further mounts when looking at the estimates reported in the right-hand panel. Across all validated respondents, all three contextualisation treatments significantly *reduce* overall accuracy (by between 6 and 15 points) compared to the direct question. There is also a surprising differential effect of contextualisation on verified voters compared to non-voters: while the contextualisation designs seem to increase accuracy among non-voters, they significantly reduce accuracy among verified voters. These results provide evidence that contextualisation does not reduce overall misreporting, but may actually significantly increase it due to the increase in reporting errors among true voters.

Why did the contextualisation treatment fail?

One potential explanation for why the contextualisation treatment failed is satisficing. Satisficing occurs when respondents devote less than optimal effort to the task of answering a survey question, performing some of the necessary cognitive steps roughly or skipping them all together (Krosnick, 1999, 548). Contextualisation questions might trigger satisficing behaviour because they are longer and involve considering a number of items in one go, making them more cognitively demanding and time-consuming than the straightforward and relatively simple direct turnout question. Below we investigate to what extent satisficing accounts for the reduction in accuracy apparently caused by the contextualisation designs relative to the direct question. To do so we must, first, identify likely satisficers and, second, show that the reduction in accuracy caused by contextualistion (rather than direct question) is particularly pronounced among these satisficers.

We identify plausible satisficers based on observed response patterns and the time taken to answer the norm-compliant and -defiant contextualisation questions. We class four response patterns as consistent with satisficing, on the basis that each of these response patterns constitute plausible strategies for answering with limited cognitive effort:

- The 'no ticker' response strategy involves ticking none of the activities and moving quickly to select 'none of the above'

- The 'first ticker' strategy involves ticking the first item and then moving to the next question

- The 'all tick' strategy involves ticking all the activities (except 'none of the above')

- The 'one ticker' strategy involves ticking any single activity and then moving on

Of course, a respondent might still truthfully offer one of these response patterns to a contextualisation question after fully engaging with the question. Therefore, we further stipulate that for a respondent to be classed as an *identified satisficer* they must also take a sufficiently short time to answer the contextualisation question, defined as any number

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of seconds less than the first quartile of the distribution of actual response times for the contextualisation question.[11]

We subset our data to the groups receiving the norm-compliant or -defiant contextualisation treatment and for which we have validated turnout. We then regress accuracy in response to the contextualisation question on the identified satisficer indicator to estimate the difference in contextualisation accuracy between satisficers and non-satsificers for the validated sample and for the subset of validated voters and validated non-voters separately. To check that the effect we estimate is the result of satisficing *induced by the contextualisation question* – and not satisficing behaviour that would be displayed in response to any turnout question – we further make use of a *baseline* direct question measure of turnout taken for the *same set of respondents* by YouGov prior to our survey experiments.[12] Specifically, for the same set of respondents, we regress self-reporting accuracy in response to the baseline direct question on the same contextualisation satisficing indicator as above. If the contextualisation question induces satisficing behaviour that in turn reduces reporting accuracy, we should observe that the satisficing indicator is negatively associated with contextualisation response accuracy but not with direct question response accuracy.

Figure 5 displays the estimated satisficing coefficients for each of these regressions – with effects on turnout reporting accuracy for the contextualisation question and baseline direct question in the left and right panels, respectively (see Appendix Table B.10 for the underlying regression table). The left panel indicates that, pooling validated voters and non-voters, compared to non-satisficers, contextualisation satisficers are significantly and substantively (59 points) less likely to offer accurate turnout reports when answering a contextualisation question. This is particularly true among validated voters, among whom satisficers are more than 60 points less accurate than non-satisficers. However, the right panel shows that contextualisation satisficers and non-satisficers do not differ significantly

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[11]Most of the satisficing-consistent patterns identified above are more common among respondents who answer the question quickly, as shown in Appendix Figure B.3.

[12]YouGov provided us with all respondents' answers to their EU-referendum vote choice question, which was fielded to all YouGov panellists immediately after polling day. This includes an "I did not vote" option and therefore provides us with a direct question turnout measure for each respondent prior to the implementation of our two survey experiments.

Figure 5: Contextualisation question satisficing and turnout reporting accuracy
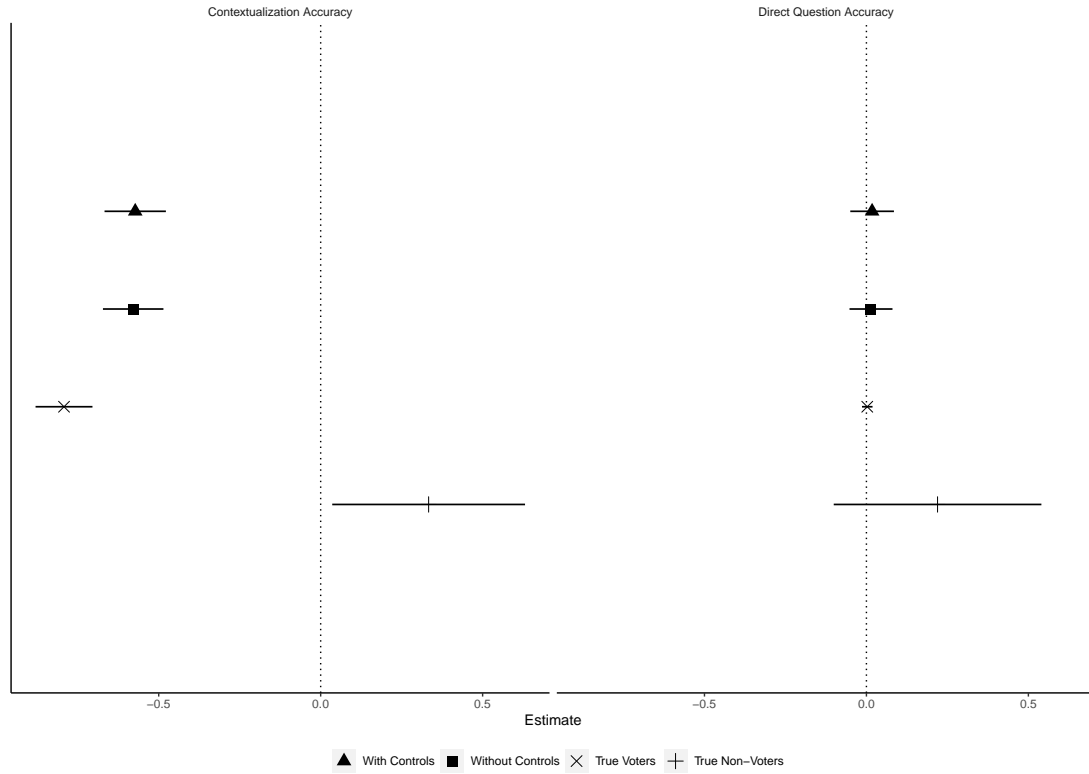
Notes: This figure shows the estimated difference (and 95% confidence interval) in reporting accuracy comparing identified contextualisation satisficers to non-satisficing respondents. The left plot shows differences in accuracy of responses to the contextualised turnout question (with, without controls, and for the subsets of verified voters and non-voters). The right plot shows differences in accuracy of responses to the baseline direct question asked of the same respondents (with, without controls, and for the subsets of verified voters and non-voters).

in turnout reporting accuracy when responding to the baseline direct question. Only among validated non-voters are identified satisficers more accurate than non-satisficers and the difference between question type is statistically insignificant. This suggests that misreporting by non-voters is a deliberate action and that the improvement in accuracy in Figure 4 is unlikely due to contextualisation weakening the psychological threat of the turnout question. Overall, the difference between the left- and right-hand panels suggests that the increased complexity of the contextualisation question is largely responsible for the observed reduction in accuracy.

Conclusion

Drawing on the self-integrity literature in social psychology and conceptualizing the turnout question as a psychological threat, we develop two alternative survey instruments aimed at reducing turnout misreporting due to self-deception. The first design aims to reaffirm respondents self-integrity through a self-affirmation exercise to reduce defensiveness when facing a psychological threat. The second design aims to mitigate the threat by contextualising turnout in a list of low-cost political activities most people will have done during an election campaign or polling day.

To evaluate the effectiveness of these alternative designs at improving reporting accuracy compared to the standard direct turnout question, we ran a series of survey experiments embedded in (partially) vote validated online surveys following the 2016 UK EU referendum. Neither the self-affirmation nor the contextualisation question significantly improved turnout reporting. Investigating their failure we show that the self-affirmation treatment failed due to the respondents' lack of engagement – or inappropriate engagement – with the self-affirmation task and that the contextualisation question design significantly increased satisficing behaviour, resulting in a less accurate measure of turnout.

Might the highly politicised nature of the 2016 UK EU referendum account for our findings? A priori it is unclear whether the specific referendum context created a harder or easier test environment for our turnout question designs. On the one hand, the highly politicised context might have strengthened psychological mechanisms that make non-voting respondents unwilling to admit non-voting when asked a direct question, thereby creating a greater volume of direct question misreporting for self-affirmation or contextualisation to correct. On the other hand, the psychological pressures to deny non-voting might have been so strong that they inhibited the operation of the self-affirmation and contextualisation questions to an unusual extent. Given our findings that self-affirmation and contextualisation questions failed primarily due to lack of proper engagement with the questions from respondents, it seems more relevant to ask whether the EU referendum context is likely to have led to unusually low levels of engagement with the questions. If anything, one would expect the high salience of the referendum in the weeks after

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the shock result to have led to higher than usual respondent engagement with questions about the referendum. From this perspective, the EU referendum should have provided a relatively kind testing ground for the self-affirmation and contextualisation turnout questions, and the failure of the questions in this context suggests they are unlikely to work in online surveys following other types of public vote.

Our results highlight the well-know difficulty of getting respondents to respond truthfully to sensitive survey questions and therefore hold implications for the public opinion literature and the survey design literature at large. Self-affirmation has recently received attention in the public opinion literature as a possible way of reducing misperceptions (e.g., Nyhan and Reifler, 2019). Getting people to properly engage with the necessary self-affirmation writing exercise, however, can be challenging, especially in the online survey environment used by many political scientists today. Moreover, most studies involving self-affirmation have been done in the US context and the intervention might be particularly well suited for this context. Our study and research by Epton et al. (2014), which were both done in the UK context, raise concerns with regard to the generalizability of this intervention. Further research is needed on this front from different contexts and using different self-affirmation treatments. For example, future research might consider incentivising the essay writing task to encourage more engagement or consider alternative treatments that allows respondents to reflect upon broader values particularly important to them.

With regard to the survey design literature our study highlights the acute tradeoffs between question design complexity and measurement accuracy. Even fairly simple changes to the question design – as in the case of our contextualisation treatments – can significantly increase satisficing behaviour, which in turn can drastically reduce measurement accuracy. With increasing use of online surveys, researchers designing instruments should keep this in mind and find ways to assess the sensitivity of their measures to satisficing.

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Online Appendix to "Psychological Threat and Turnout Misreporting"

Patrick M Kuhn, Samuel Mellish, and Nick Vivyan

A   Further Details on Survey Instruments

A.1   Study 1

***Direct Question* Condition**

[A1] Talking with people about the recent EU referendum on June 23th, we have found that a lot of people didn't manage to vote. How about you, did you manage to vote in the EU referendum?

- Yes

- No

- Don't know

[A2] How much attention do you generally pay to politics?

- 1 - Pay no attention

- 2

- 3

- 4

- 5

- 6

- 7

- 8

- 9

- 10 - Pay a great deal of attention

- Don't know

[A3] In general, how do you feel about yourself?

- 1 - Extremely negative

- 2

- 3

- 4

- 5

- 6

- 7

- 8

- 9

- 10 - Extremely positive

- Don't know

[A4] Please say how much you agree or disagree with the following statements.

  1. I have the ability and skills to deal with whatever comes my way

     - 1 - strongly disagree
     - 2 - tend to disagree
     - 3 - neither agree or disagree
     - 4 - tend to agree
     - 5 - strongly agree
     - Don't know

  2. Even though there is always room for self-improvement, I feel a sense of completeness about who I fundamentally am

     - 1 - strongly disagree
     - 2 - tend to disagree
     - 3 - neither agree or disagree
     - 4 - tend to agree
     - 5 - strongly agree
     - Don't know

Self-Affirmation Treatment Condition

[B1] In this part of the survey, we will ask you some questions about your ideas, your beliefs, and your life. When you respond to these questions, please bear in mind that there are no right or wring answers.

Below is a list of characteristics and values, some of which may be important to you, some of which maybe unimportant.

Looking at this list, please indicate the characteristic or value that is MOST important to you.

- Business skills

- Relationships with friends and family

- Being smart or getting good grades

- Sense of humour

- Musical ability/appreciation

- Physical attractiveness

- Creativity

- Romantic values

- Social skills

- Athletic ability

- Living in the moment

- being good at art

- Other (please specify)

[B2] Please take a few moments to describe a personal experience in which [value selected in previous question] was especially important to you and made you feel good about yourself. Don't worry about spelling, grammar, or how well written your answer is.

[B3] Talking with people about the recent general election on May 7th, we have found that a lot of people didn't manage to vote. How about you, did you manage to vote in the general election?

- Yes

- No

- Don't know

[B4] How much attention do you generally pay to politics?

- 1 - Pay no attention

- 2

- 3

- 4

- 5

- 6

- 7

- 8
- 9
- 10 - Pay a great deal of attention
- Don't know

[B5] In general, how do you feel about yourself?

- 1 - Extremely negative
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 - Extremely positive
- Don't know

[B6] Please say how much you agree or disagree with the following statements.

1. I have the ability and skills to deal with whatever comes my way

   - 1 - strongly disagree
   - 2 - tend to disagree
   - 3 - neither agree or disagree
   - 4 - tend to agree
   - 5 - strongly agree
   - Don't know

2. Even though there is always room for self-improvement, I feel a sense of completeness about who I fundamentally am

   - 1 - strongly disagree
   - 2 - tend to disagree
   - 3 - neither agree or disagree
   - 4 - tend to agree

- 5 - strongly agree
- Don't know

Self-Affirmation Placebo Condition

[C1] In this part of the survey, we will ask you some questions about your ideas, your beliefs, and your life. When you respond to these questions, please bear in mind that there are no right or wring answers.

Below is a list of characteristics and values, some of which may be important to you, some of which maybe unimportant.

Looking at this list, please indicate the characteristic or value that is LEAST important to you.

- Business skills

- Relationships with friends and family

- Being smart or getting good grades

- Sense of humour

- Musical ability/appreciation

- Physical attractiveness

- Creativity

- Romantic values

- Social skills

- Athletic ability

- Living in the moment

- being good at art

- Other (please specify)

[C2] Please take a few moments to describe why another person might find [value selected in previous question] important. Don't worry about spelling, grammar, or how well written your answer is.

[C3] Talking with people about the recent EU referendum on June 23th, we have found that a lot of people didn't manage to vote. How about you, did you manage to vote in the EU referendum?

- Yes

- No

- Don't know

[C4] How much attention do you generally pay to politics?

- 1 – Pay no attention
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 – Pay a great deal of attention
- Don't know

[C5] In general, how do you feel about yourself?

- 1 – Extremely negative
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 – Extremely positive
- Don't know

[C6] Please say how much you agree or disagree with the following statements.

1. I have the ability and skills to deal with whatever comes my way

- 1 - strongly disagree
- 2 - tend to disagree
- 3 - neither agree or disagree
- 4 - tend to agree
- 5 - strongly agree
- Don't know

2. Even though there is always room for self-improvement, I feel a sense of completeness about who I fundamentally am

  - 1 - strongly disagree
  - 2 - tend to disagree
  - 3 - neither agree or disagree
  - 4 - tend to agree
  - 5 - strongly agree
  - Don't know

Norm-Compliant Contextualisation Condition

[D1] The next question deals with the recent EU referendum on June 23rd. Here is a list of things that some people did and some people did not do during the referendum campaign or on polling day. Which of these things did you do? Please select as many as apply.

- Discussed the referendum with family and friends
- Read a referendum campaign leaflet
- Watched a news story about the referendum campaign
- Participated in an online conversation about the referendum
- Watched a referendum debate on TV
- Voted in the referendum
- Put up a leave or remain poster in my window or garden
- None of the above
- Don't know

Norm-Defiant Contextualisation Condition

[E1]The next question deals with the recent EU referendum on June 23rd. Here is a list of things that some people did and some people did not do during the referendum campaign or on polling day. Which of these things did you do? Please select as many as apply.

- Discussed the referendum with family and friends

- Threw away some referendum campaign leaflets without reading them

- Watched a news story about the referendum campaign

- Criticised a politician online

- Avoided watching a referendum debate on TV

- Voted in the referendum

- Put up a leave or remain poster in my window or garden

- None of the above

- Don't know

A.2   Study 2

Direct Question Condition

[A1] Talking with people about the recent EU referendum on June 23th, we have found that a lot of people didn't manage to vote. How about you, did you manage to vote in the EU referendum?

- Yes

- No

- Don't know

Norm-Compliant Contextualisation Condition

[B1] The next question deals with the recent EU referendum on June 23rd. Here is a list of things that some people did and some people did not do during the referendum campaign or on polling day. Which of these things did you do? Please select as many as apply.

- Discussed the referendum with family and friends

- Read a referendum campaign leaflet

- Watched a news story about the referendum campaign

- Participated in an online conversation about the referendum

- Watched a referendum debate on TV

- Voted in the referendum

- Put up a leave or remain poster in my window or garden

- None of the above

- Don't know

Norm-Defiant Contextualisation Condition

[C1] The next question deals with the recent EU referendum on June 23rd. Here is a list of things that some people did and some people did not do during the referendum campaign or on polling day. Which of these things did you do? Please select as many as apply.

- Discussed the referendum with family and friends

- Threw away some referendum campaign leaflets without reading them

- Watched a news story about the referendum campaign

- Criticised a politician online

- Avoided watching a referendum debate on TV

- Voted in the referendum

- Put up a leave or remain poster in my window or garden

- None of the above

- Don't know

Low Prevalence Contextualisation Condition

[D1] The next question deals with the recent EU referendum on June 23rd. Here is a list of things which some people did and some people did not do during the referendum campaign or on polling day. Which of these things did you do? Please tick as many as apply.

- Attended a referendum campaign event in person

- Donated money to one of the referendum campaigns

- Helped organise a referendum debate in my local community

- Volunteered for one of the referendum campaigns

- Wrote a letter about the referendum to a local or national newspaper

- Voted in the referendum

- Put up a leave or remain campaign poster in my window or garden

- None of the above

- Don't know

A.3 Further Details on Measurement of True Respondent Turnout

In this section we give further details on the vote validation process and outcomes for our Study 1 and 2 respondents.

Vote validation process: Following Study 1 and 2 fieldwork, YouGov provided us with a file containing *only* the names and addresses of respondents. Using this information we could locate respondents on the marked electoral register for the 2016 EU Referendum. A marked electoral register is the copy of the electoral register used by officials at polling stations on Polling Day on which polling station officials mark when a listed elector has voted. Paper copies of the marked registers covering all registered electors in a given Local Authority area are stored in the offices of that Local Authority, and available for in-person inspection only, for twelve months after Polling Day. To validate the turnout of any given respondent, we thus had to visit the offices of the Local Authority in which they resided. Because there are large number of Local Authorities in the UK, there were relatively few respondents from our sample in any given Local Authority and the authorities in which respondents resided were widely geographically dispersed. Due to budget constraints, we opted to inspect the marked registers of a convenience sample of Local Authorities which tended to be clustered in more urban areas, and could thus be accessed quickly from a single base in that urban area.

We inspected marked registers in 66 Local Authorities, spread across 10 of the eleven non-Northern Irish UK regions. Across these authorities, we attempted to validate the votes of 2,097 of all Study 1 and 2 respondents. However, we did not obtain 'definitive' validated turnout measures for all of these respondents: in some cases we did not find the name of a survey respondent recorded on the register for the address at which they reported living; in other cases we could not locate the given address of a respondent on the register. We thus obtained definitive true turnout measures for 1,797 of these respondents.

Once the vote validation process was completed, we passed the file recording validated votes back to YouGov, who stripped the data of personal information and merged it back in with the survey response data. Thus at no point were we able to connect individual survey responses to named individuals.

Vote validation outcomes: Whenever we attempted to validate a respondent against the marked register, we recorded six possible outcomes, as follows:

1. *Voted*: the named individual is found at the given address on the register clearly voted. This is a definitive validation outcome.

2. *Did not vote*: the named individual is found at the given address on the register and clearly did not vote. This is a definitive validation outcome.

3. *Not eligible*: the named individual is found at the given address on the register and was marked as not eligible to vote (e.g., under-age or non-UK EU citizen). This is a definitive validation outcome.

4. *Absentee/proxy missing information*: the named individual is found at the given address on the register and is marked as an absentee voter or proxy voter, but the turnout records for such voters (which are stored in a separate file) was not available in the local authority in question. This is a indefinite validation outcome.

5. *Not at address*: the named individual was not found at the address given. This is an indefinite validation outcome, as the individual may have been registered at another address at the time of the election or may have incorrectly reported their address to YouGov.

6. *Address not found*: the reported address was not on the register. This is an indefinite validation outcome, as the individual may have incorrectly reported their address to YouGov.

Table A.1 reports the validation and self-reported turnout outcome, as percentages, for the 1,746 respondents whose turnout was successfully validated.

Table A.1: True Turnout and Self-Reported Turnout

| | | Self Reported Turnout | | |
		No	Yes	Total
	No	70	30	100
		(163)	(70)	(223)
Actual	**Yes**	10	90	100
Turnout		(155)	(1358)	(1513)
	Total	18	82	100
		(318)	(1428)	(1746)

Notes: This table presents the relationship between self-reported turnout and actual turnout in our sample as percentages. The numbers in parentheses are frequencies.

Table A.2 reports the frequency of each validation outcome for the 2,097 respondents for whom vote validation was attempted.

Table A.2: Frequencies of vote validation outcomes (Study 1 and 2 pooled)

Validation outcome	Freq	Percent
Voted	1542	74
Did not vote	206	10
Not eligible	49	2
Absentee/proxy missing info	39	2
Not at address	196	9
Address not found	65	3

B   Additional Tables and Figures

Table B.3: Randomisation Check for the Self-Affirmation Experiment (Study1)

Respondent attribute	Chi.sq	df	p-value
Social grade	3.95	6	0.68
Age group	4.64	8	0.79
Gender	1.45	2	0.48
Qualification	4.56	6	0.60
Validated Turnout	2.28	2	0.32

Notes: This table reports the results of a randomisation check for the self-affirmation experiment in study 1

Table B.4: Randomisation Check for the Contextualisation Experiment in Study 1

Respondent attribute	Chi.sq	df	p-value
Social grade	2.61	6	0.86
Age group	16.52	8	0.04
Gender	5.13	2	0.08
Qualification	1.91	6	0.93
Validated Turnout	1.02	2	0.60

Notes: This table reports the results of a randomisation check for the contextualisation experiment in study 1

Table B.5: Randomisation Check for the Contextualisation Experiment in Study 2

Respondent attribute	Chi.sq	df	p-value
Social grade	17.46	9	0.04
Age group	11.97	12	0.45
Gender	2.13	3	0.55
Qualification	1.58	9	1.00
Validated Turnout	1.53	3	0.68

Notes: This table reports the results of a randomisation check for the contextualisation experiment in study 2

Table B.6: The Effect of Self-Affirmation Interventions on Self-Reported Turnout and Accuracy

| | Turnout | | | | Accuracy | | | | | |
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Intercept	0.890***	0.842***	0.916***	0.755***	0.966***	0.796***	1.000***	0.714***	0.809***	0.778**
	(0.011)	(0.071)	(0.026)	(0.144)	(0.017)	(0.089)	(0.000)	(0.130)	(0.046)	(0.325)
SAT Treatment	0.016	0.018	−0.012	−0.014	0.026	0.026	−0.000	0.209	−0.001	0.160
	(0.015)	(0.015)	(0.037)	(0.040)	(0.018)	(0.025)	(0.000)	(0.153)	(0.014)	(0.184)
SAT Placebo	0.006	0.008	−0.060	−0.058	−0.038	−0.044*	−0.032*	0.008	−0.032**	−0.186
	(0.016)	(0.016)	(0.042)	(0.042)	(0.030)	(0.026)	(0.019)	(0.171)	(0.015)	(0.179)
Difference	0.010	0.010	0.048	0.038	0.064*	0.068*	0.032**	0.201	0.031**	0.346**
	(0.015)	(0.015)	(0.042)	(0.042)	(0.024)	(0.026)	(0.019)	(0.137)	(0.014)	(0.164)
Controls	No	Yes	No	Yes	No	Yes	No	No	Yes	Yes
Sample	F	F	V	V	V	V	TV	TNV	TV	TNV
Observations	2,349	2,349	355	355	355	355	310	45	310	45
R^2	0.0005	0.023	0.007	0.108	0.019	0.068	0.023	0.050	0.114	0.377

Notes: This table reports the effects of self-affirmation interventions on self reported turnout and accuracy. The first dependent variable measures the rate of self-reported turnout, with the second recording the extent to which respondents were accurate when reporting their turnout. The second and third rows compare the treatment and placebo with the control group, respectively, whilst the row entitled Difference presents the difference between treatment and placebo groups. Models with a sample indicator of F indicate that the full sample is used. Models with a sample indicator of V indicate that the sample used is restricted to those participants whose votes were validated. Models with a sample indicator of TV indicate that the sample is restricted to true voters, whereas, those including TNV, indicate that the sample is restricted to true non-voters. The controls used include both demographic and social variables. Estimates significant at the 0.05 (0.10, 0.01) level are marked with ** (*, ***).

Table B.7: Manipulation Checks

	Feelings towards the Self				Ability				A Sense of Completeness			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Intercept	6.814***	7.270***	6.765***	6.230***	3.715***	3.654***	3.790***	3.008***	3.530***	3.585***	3.603***	3.189***
	(0.068)	(0.390)	(0.179)	(0.912)	(0.032)	(0.238)	(0.080)	(0.436)	(0.036)	(0.205)	(0.094)	(0.473)
Treatment	−0.205**	−0.195**	−0.179	−0.300	−0.083*	−0.085*	−0.123	−0.127	−0.097*	−0.096*	−0.195	−0.269**
	(0.099)	(0.098)	(0.254)	(0.255)	(0.047)	(0.046)	(0.116)	(0.121)	(0.052)	(0.052)	(0.130)	(0.132)
Placebo	−0.112	−0.093	0.012	−0.044	−0.118**	−0.115**	−0.254**	−0.218*	−0.114**	−0.110**	−0.171	−0.203
	(0.099)	(0.097)	(0.255)	(0.266)	(0.047)	(0.047)	(0.122)	(0.127)	(0.052)	(0.052)	(0.133)	(0.138)
Difference	-0.093	-0.102	-0.191	-0.256	0.035	0.030	0.130	0.091	0.018	0.014	-0.024	-0.066
	(0.101)	(0.010)	(0.255)	(0.257)	(0.049)	(0.049)	(0.124)	(0.123)	(0.053)	(0.053)	(0.131)	(0.133)
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Sample	F	F	V	V	F	F	V	V	F	F	V	V
Observations	2,338	2,338	354	354	2,331	2,331	355	355	2,317	2,317	352	352
R^2	0.002	0.050	0.002	0.090	0.003	0.026	0.012	0.082	0.002	0.028	0.008	0.087

Notes: This table reports the results of the manipulation checks on the treatment and placebo groups in comparison to the baseline. The dependent variables *Feelings towards the Self* (1), *Ability* (2), *A Sense of Completeness* (3), determine respondents' emotional state following either the direct question or the self-affirmation treatment or placebo question. Models with a sample indicator of F indicate that the full sample is used. Models with a sample indicator of V indicate that the sample used is restricted to those participants whose votes were validated. The controls used include both demographic and social variables. Estimates significant at the 0.05 (0.10, 0.01) level are marked with ** (*, ***).

Figure B.1: Difference in the Proportion of Positive and Negative Words in the Treatment and Placebo Responses
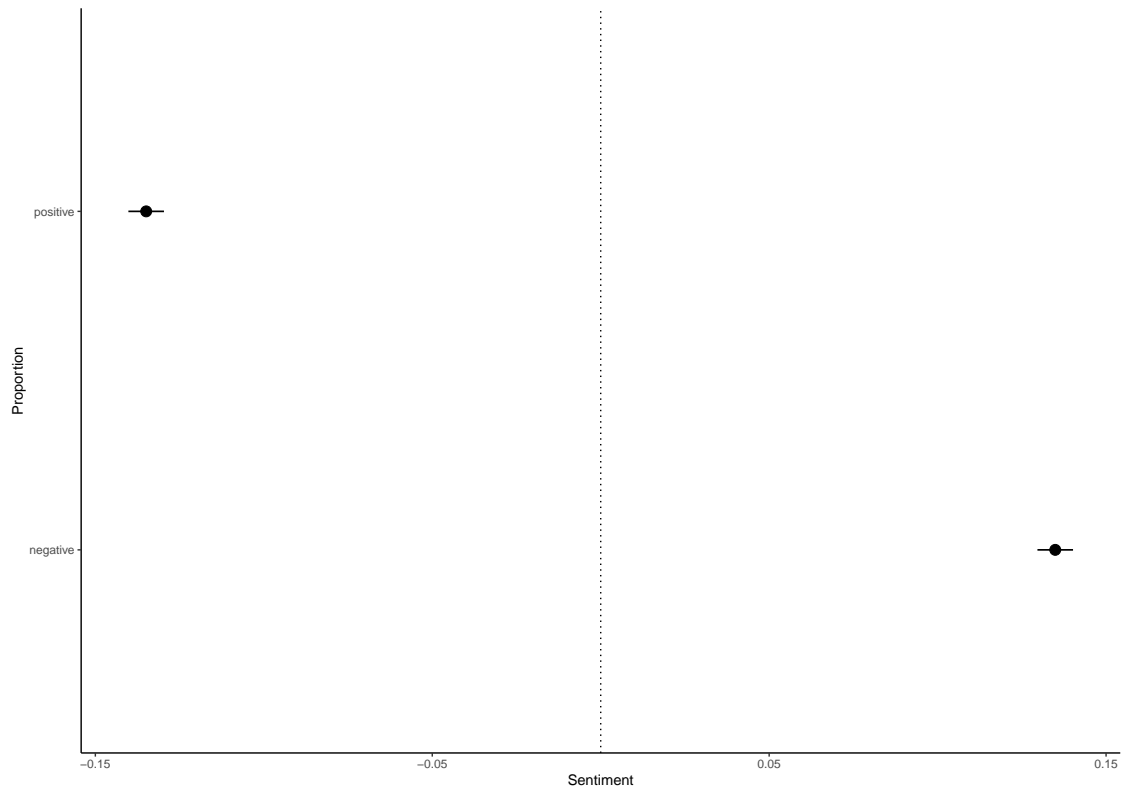
Notes: This figure reports the difference in the proportion of negative and positive sentiment between the treatment and placebo groups' answers for either the self-affirmation or placebo questions. Each coefficient identifies the difference and includes 95% confidence interval bars.

Table B.8: The Effects of Contextualisation of Self-Reported Turnout and Accuracy

| | Turnout | | | | Accuracy | | | | | |
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Intercept	0.883***	0.936***	0.926***	0.993***	0.937***	1.014***	0.995***	0.548***	1.016***	0.637***
	(0.009)	(0.029)	(0.021)	(0.070)	(0.016)	(0.069)	(0.005)	(0.092)	(0.067)	(0.188)
Norm Compliant	−0.082***	−0.081***	−0.113***	−0.120***	−0.063***	−0.060***	−0.096***	0.177	−0.097***	0.208**
Contextualisation	(0.011)	(0.011)	(0.026)	(0.026)	(0.022)	(0.023)	(0.016)	(0.109)	(0.018)	(0.104)
Norm Defiant	−0.076***	−0.077***	−0.117***	−0.136***	−0.088***	−0.093***	−0.122***	0.124	−0.133***	0.151
Contextualisation	(0.011)	(0.011)	(0.026)	(0.026)	(0.023)	(0.024)	(0.017)	(0.111)	(0.019)	(0.104)
Low Prevalence	−0.161***	−0.160***	−0.195***	−0.217***	−0.145***	−0.146***	−0.193***	0.181	−0.208***	0.230**
Contextualisation	(0.014)	(0.014)	(0.032)	(0.032)	(0.027)	(0.030)	(0.024)	(0.113)	(0.027)	(0.113)
Controls	No	Yes	No	Yes	No	Yes	No	No	Yes	Yes
Sample	F	F	V	V	V	V	TV	TNV	TV	TNV
Observations	8,826	8,825	1,510	1,510	1,510	1,510	1,308	202	1,308	202
R^2	0.014	0.045	0.023	0.076	0.017	0.043	0.035	0.018	0.069	0.203

Notes: The table presents the effects of norm-compliant, norm-defiant and low-prevalence contextualisation on the rate of self-reported turnout and the extent to which respondents reported their turnout accurately. The first dependent variable measures the rate of self-reported turnout, with the second recording the extent to which respondents were accurate when reporting their turnout. Models with a sample indicator of F indicate that the full sample is used. Models with a sample indicator of V indicate that the sample used is restricted to those participants whose votes were validated. Models with a sample indicator of TV indicate that the sample is restricted to true voters, whereas, those including TNV, indicate that the sample is restricted to true non-voters. The controls used include both demographic and social variables. Estimates significant at the 0.05 (0.10, 0.01) level are marked with ** (*, ***).
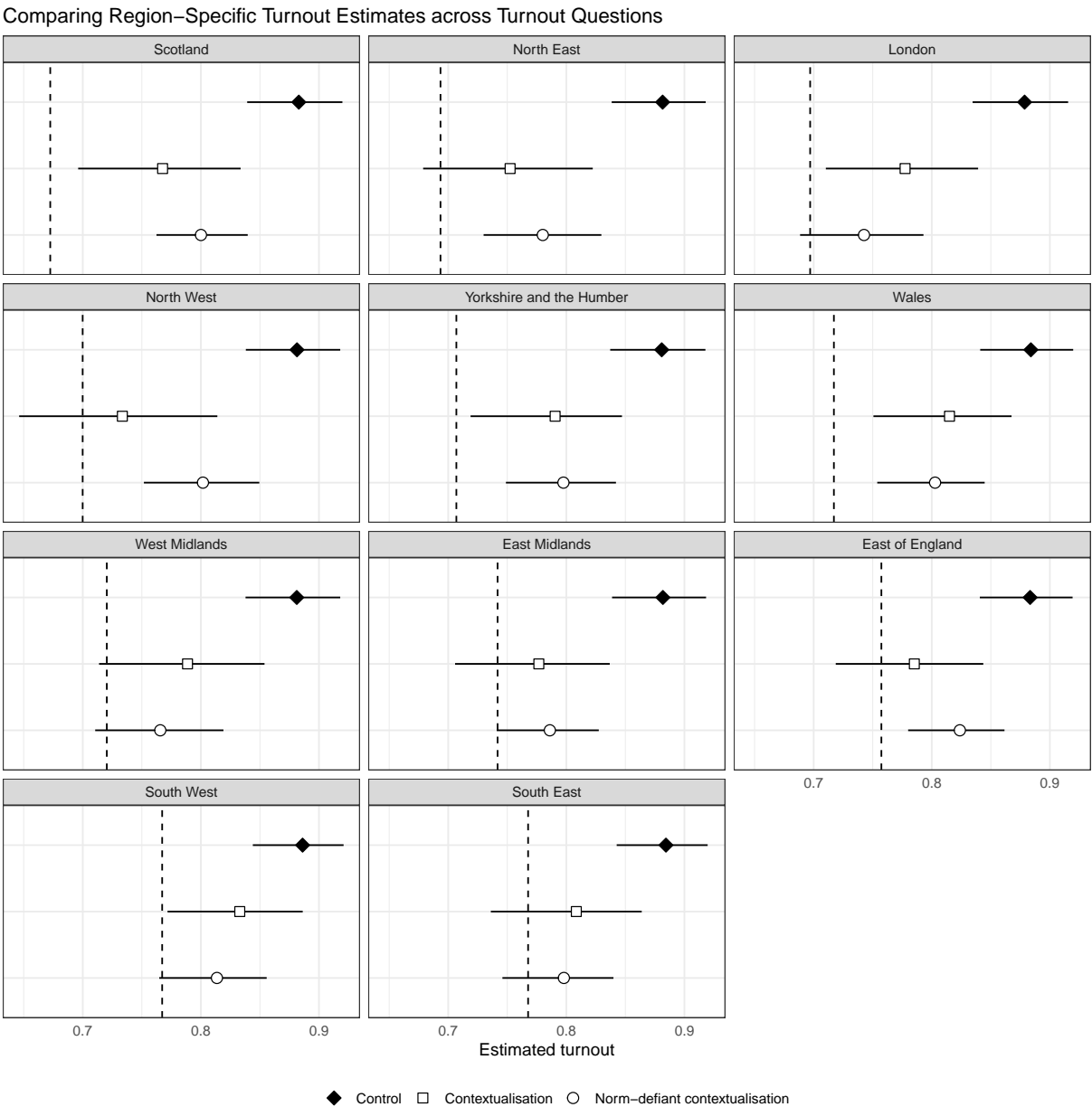
Table B.9: Interaction between the Study 2 Inidcator and Contextualisation Treatments

|	Turnout		Accuracy	
	Model 1	Model 2	Model 3	Model 4
Intercept	0.890***	0.944***	0.966***	1.042***
	(0.011)	(0.030)	(0.066)	(0.090)
Norm Compliant Contextualisation	−0.093***	−0.094***	−0.056*	−0.060
	(0.018)	(0.018)	(0.031)	(0.044)
Norm Defiant Contextualisation	−0.088***	−0.089***	−0.142***	−0.156***
	(0.018)	(0.018)	(0.039)	(0.045)
Study 2	0.011	0.008	−0.060*	−0.062
	(0.016)	(0.016)	(0.032)	(0.045)
Study 2 x Norm Compliant Contextualisation	0.023	0.025	0.007	0.011
	(0.023)	(0.023)	(0.045)	(0.058)
Study 2 x Norm Defiant Contextualisation	0.023	0.024	0.092*	0.098*
	(0.023)	(0.023)	(0.050)	(0.058)
Controls	No	Yes	No	Yes
Sample	F	F	V	V
Observations	8,826	8,825	1,510	1,510
R^2	0.015	0.045	0.020	0.046

Notes: This table presents the effects of non-compliant and norm-defiant contextualisation on the rate of self-reported turnout, with additional estimates for the interaction between our study 2 indications and the contextualisation treatments. Models with a sample indicator of F indicate that the full sample is used. Models with a sample indicator of V indicate that the sample used is restricted to those participants whose votes were validated. The controls used include both demographic and social variables. It identifies that such an interaction produces non-significant results. Estimates significant at the 0.05 (0.10, 0.01) level are marked with ** (*, ***).

Figure B.2: MRP Estimates of Turnout for GB Regions from Contextualized and Direct Turnout Questions

Comparing Region−Specific Turnout Estimates across Turnout Questions

◆ Control □ Contextualisation ○ Norm−defiant contextualisation

Notes: For each GB region, we plot MRP estimates of EU referendum turnout based on the control, contextualisation, and norm-defiant contextualisation

Figure B.3: Time Taken to Answer Contextualized Turnout Questions Across Satisficing Answer Patterns
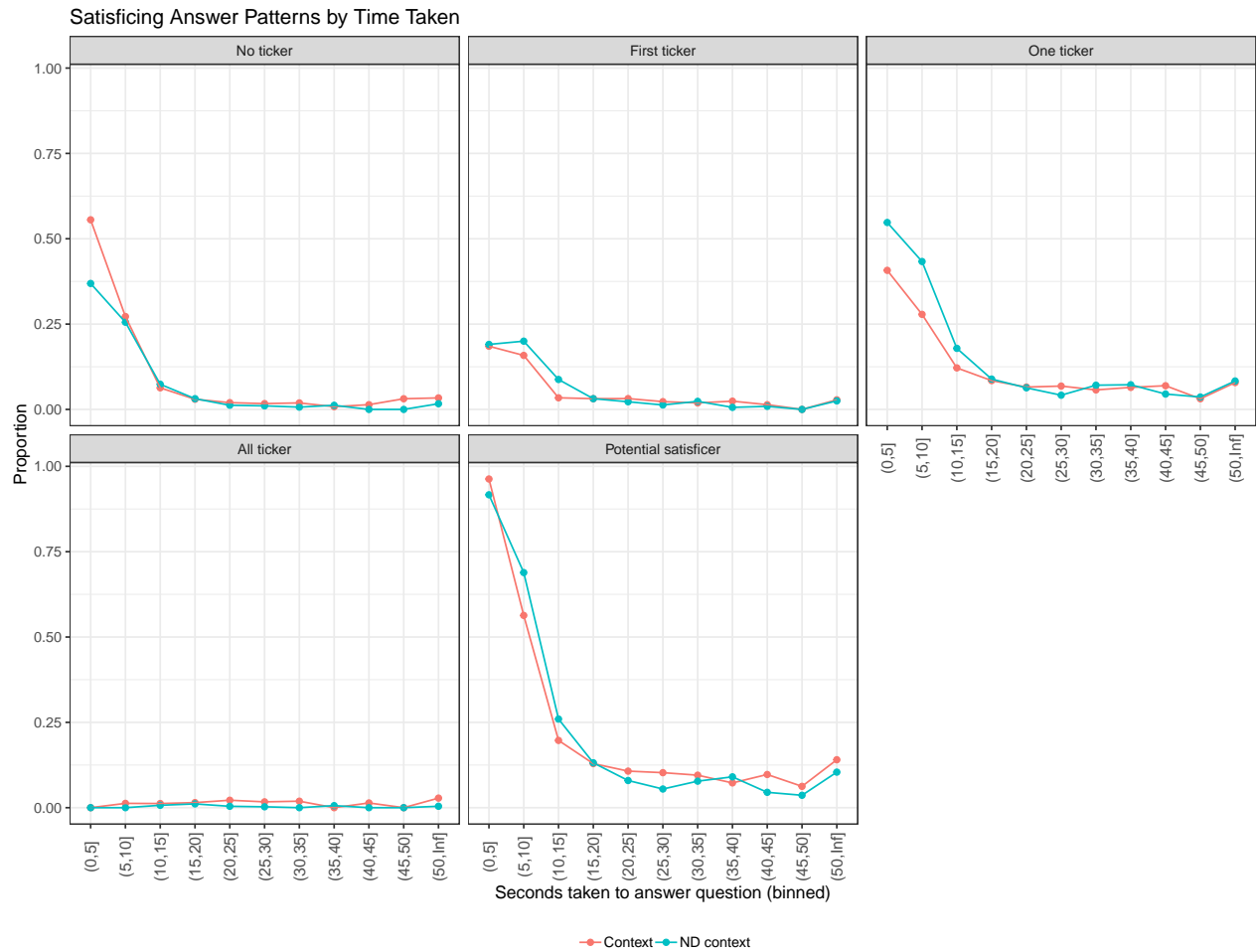
Notes: The first four panels show how the proportion of respondents offering a particular satisficing-consistent response strategy (y-axis) varies with time taken to answer each contextualisation question (x-axis). The final panel shows how the total proportion of satisficing-consistent responses varies with time taken. Time is categorized into five-second intervals.

Table B.10: The Effect of Contextualisation Satisficing on Contextualisation and Direct Question Accuracy

| | Contextualisation | | | | | | Direction Question | | | | | |
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Intercept	0.891***	0.889***	0.924***	0.667***	0.881***	0.761***	0.944***	0.965***	0.997***	0.580***	0.992***	0.522**
	(0.011)	(0.059)	(0.010)	(0.045)	(0.046)	(0.215)	(0.008)	(0.028)	(0.002)	(0.047)	(0.006)	(0.242)
Satisficers	−0.579***	−0.573***	−0.792***	0.333***	−0.781***	0.318**	0.014	0.018	0.003	0.220	0.003	0.252
	(0.069)	(0.070)	(0.057)	(0.045)	(0.058)	(0.157)	(0.030)	(0.032)	(0.002)	(0.148)	(0.003)	(0.177)
Controls	No	Yes	No	No	Yes	Yes	No	Yes	No	No	Yes	Yes
Sample	V	V	TV	TNV	TV	TNV	V	V	TV	TNV	TV	TNV
Observations	922	922	801	121	801	121	926	926	804	122	804	122
R^2	0.138	0.158	0.282	0.040	0.311	0.219	0.0002	0.020	0.0001	0.015	0.022	0.119

Notes: This table presents the effect of contextualisation satisficing on the response accuracy of answering the contextualized and direct turnout question. The dependent variables measure the extent to which respondents were accurate when reporting their turnout when answering the contextualisation question (models 1-6) or the direct question (models 7-12). Respondents are divided into two groups: satisficers and non-satisficers, which are then compared. Models with a sample indicator of V indicate that the validated sample is used. Models with a sample indicator of TV indicate that the sample is restricted to true voters, whereas, those including TNV, indicate that the sample is restricted to true non-voters. The controls used include both demographic and social variables. Estimates significant at the 0.05 (0.10, 0.01) level are marked with ** (*, ***).

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