EXPLAINING POLITICAL ENGAGEMENT WITH ONLINE PANELS
COMPARING THE BRITISH AND AMERICAN ELECTION STUDIES

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Abstract   Online surveys have seen a rapid growth in the past decade and are now frequently being used for electoral research. Although they have obvious advantages, it is unclear whether the data produce inferences similar to more traditional face-to-face surveys, particularly when response to the survey is correlated with the survey variables of interest. Drawing on data from the latest American National Election Study and British Election Study, we examine how age affects political engagement, comparing responses between face-to-face and online surveys. The results indicate that online surveys, particularly those where respondents have opted in, reduce variance and overestimate the proportion of those who are politically engaged, which produces different conclusions about what motivates citizens to vote. These findings suggest a need to acknowledge selection bias when examining questions about political engagement, particularly when it comes to election surveys that rely on opt-in panels that are more likely to attract those who are interested in the subject matter and thus more politically engaged.

Introduction

For more than half a century, the American National Election Study (ANES) was the primary source of data for electoral research in the United States. From its beginning, the ANES relied on personal face-to-face (FTF) interviews,

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once considered to be the gold standard by which all other survey methods were to be compared (see Groves et al. [2004]; de Leeuw [2005]). It is still the most widely used mode in electoral research outside the United States.[1] The primary advantages of FTF surveys are that they can be lengthy while still maintaining high response rates. However, FTF surveys are costly and reaching a point that will soon be unsustainable. For example, the 2012 ANES, which included 2,000 FTF interviews of 70 minutes in length each (in both pre and post), is estimated to have cost $4.2 million to complete, or $2,100 per respondent.[2] The Economic and Social Research Council's (ESRC) call for the 2015 British Election Study (BES) was for a maximum of £1.25 million, most of which was devoted to the core FTF probability sample, which traditionally consists of about 3,000 completed FTF interviews. The rising costs of FTF interviews raise questions about whether their cost can be justified, particularly when response rates (which have long been viewed as one of the method's primary advantages) are in decline.

In comparison, online surveys are a bargain, making original data collection within the reach of far more academics with relatively small research budgets. As an example, the 2006 Cooperative Congressional Election Study (CCES) and the 2008 Cooperative Campaign Analysis Project (CCAP) offered researchers 1,000 pre- and post-online interviews lasting ten minutes during the campaign, and five minutes post-election, for just $15,000 (Vavreck and Rivers 2008). The proliferation of online panels available today means that researchers have access to more data sources, and even have the ability to design their own surveys. Aside from cost, another advantage of online surveys is speed and flexibility; questionnaires can be distributed quickly, and the medium allows for visual and audio presentations that are not possible with telephone or even FTF surveys. Another advantage that online surveys have over FTF surveys is the absence of an interviewer, which has the potential to alter response patterns (Atkeson, Adams, and Alvarez 2014). For this reason, online surveys appear to reduce social desirability bias (Chang and Krosnick 2009). Investigators for both the ANES and the BES have recognized these advantages and have incorporated online surveys into their studies.

Some members of the academic community have been quick to embrace online panels as a new and inevitable development in survey methodology that is comparable to more traditional probability-based methodologies; but others, namely those in the public opinion community, remain skeptical. One of the primary concerns with online surveys is the method used to select respondents. Many, but not all, online surveys are based on nonprobability samples

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1. Of the 104 election studies in 46 countries that participated in the Comparative Study of Electoral Systems (CSES) between 1996 and 2014, nearly three-quarters (72 percent) rely on FTF surveys, while 20 percent were conducted over the telephone and the rest conducted by mail.
2. Personal communication with Gary Segura, Co-Principal Investigator of the ANES, February 29, 2012.

where respondents "opt in" to a survey in exchange for a reward of some kind. Unlike traditional probability samples that rely on the principle of randomness, such nonprobability techniques are purposive and rely on targeted advertising campaigns, monetary incentives to recruit participants, and quotas to build a representative sample (see Couper [2000]). With nonprobability samples, margins of sampling error are indicative rather than real. According to statistical theory, when using a nonprobability or quota sample, it is unclear how to compute a standard deviation, how to estimate standard errors, or how to systematically assess the expected variability. According to the American Association of Public Opinion Research (AAPOR), "virtually all surveys taken seriously by social scientists, policy makers, and the informed media use some form of random or probability sampling, the methods of which are well grounded in statistical theory and the theory of probability."

Nevertheless, it has become increasingly difficult to justify the high costs associated with this approach when other, less expensive methods are available that may produce results that are just as accurate. Rivers (2006) suggests that a representative sample can be built from purposive rather than random selection through a technique known as "matching." This involves a two-step process that first constructs a sampling frame from a high-quality probability sample, such as the Current Population Survey. A target sample is then constructed by matching those from a large panel of potential respondents to the sampling frame. Sampling matching methodology is a form of purposive selection intended to match the joint distribution of a set of covariates in the target population. Such an approach was used by Polimetrix to produce the CCES and CCAP studies discussed above. Two questions remain: Do these inexpensive approaches to data collection deliver what we want them to deliver? Can we now obtain high-quality public opinion data generalizable to the underlying population with these new methods?

In this paper, we examine how results from models that rely on data from different types of online panels might affect inferences about youth and political engagement, a question of long-standing theoretical interest. In part, online surveys offer several advantages to examining this question; younger respondents are often difficult to reach in FTF surveys and may be easier to find online. In addition, online surveys may be better suited for examining questions about voter turnout because they are not likely to suffer from social desirability bias, which is a common problem with FTF surveys (as discussed earlier). Our primary interest here is not to focus simply on whether online panels produce results that are statistically different from FTF surveys. Rather, we are interested in addressing whether the results produced from online panels lead to different substantive interpretations than traditional FTF surveys. To investigate this question, we employ data from the 2012 American National Election Study (ANES) and the 2010 British Election Study (BES). As mentioned above, both national election studies use both FTF and online survey modes. However, the sampling method employed for the online panels differs

considerably: the ANES utilizes a more costly probability sampling, while the BES relies on opt-in panels. This offers a unique opportunity to investigate how survey mode and sampling design may influence the inferences we make in electoral research.

Differences between Face-to-Face and Online Surveys

A number of studies have attempted to test the validity of data collected through online surveys using two primary methods. One method compares estimates of pre-election polls to electoral outcomes. Many of the studies found that nonprobability samples are extremely accurate (Taylor et al. 2001; Twyman 2008; Vavreck and Rivers 2008), but others found that Internet surveys fail to accurately reflect the outcome variable of interest (Gibson and McAllister 2008). Another method used involves comparing data obtained from probability samples administered either by FTF or by telephone with data collected online. For example, Sanders et al. (2007) used data from the 2005 British Election Study to compare responses obtained from the FTF survey, which had formed the core of the BES, to an equivalent survey administered to an online panel by YouGov UK. They found statistically significant, but small, differences in distributions of key explanatory variables in models of turnout and party choice. In particular, they found that the online sample was somewhat less left leaning than the probability sample. Nevertheless, they said that "More important, in our view, the in-person and Internet surveys yield remarkably similar results when it comes to estimating parameters in voting behavior models." They concluded that these findings point to the conclusion that high-quality Internet surveys are unlikely to mislead the students of British voting behavior about the effects of different variables on turnout and vote choice (279). Others have reached similar conclusions. For example, Stephenson and Crete (2010) compared telephone and Internet surveys in Quebec and found that although the point estimates differed between the two surveys, the substantive conclusions drawn about voting behavior were similar. Ansolabehere and Schaffner (2014) also compared point estimates and various models, including political knowledge, news consumption, and presidential approval across telephone, mail, and Internet surveys, and found few instances of significant differences across modes.

Others, however, remain more skeptical. Yeager et al. (2011) compared the accuracy of estimates obtained from telephone and Internet surveys to benchmarks obtained from large probability FTF samples with high response rates. They found that nonprobability survey measurements were much more variable in their accuracy. The authors concluded by stating that nonprobability samples are more appropriate when testing null hypotheses than when estimating the strength of an association. Malhotra and Krosnick (2007) compared data from the ANES with Internet panels recruited by Harris Interactive and YouGov. In both of the latter cases, samples were based on opt-in panels

that had been recruited initially through advertisements on websites and other means. Their examination of a series of relationships between demographic and attitudinal variables and vote choice and turnout showed significant differences in about a quarter of the models, but the magnitude of the effects is unclear.[3] These findings led them to conclude that mode and/or sampling method might indeed make a difference. While this suggests the need to be careful when using nonprobability samples, it is not clear exactly how results would lead researchers to draw different conclusions of theoretical importance.

Youth and Political Engagement

Voter turnout is often viewed as an indicator of the health of democracy. Declining rates of turnout have been observed in many Western democracies; these declines often attract a great deal of attention and demands for explanation. Documenting the 30-year trend in declining political and civic engagement in America, Putnam (2001) attributed virtually all of the decline to the gradual replacement of voters who came of age before the New Deal and World War II with younger voters who came of age later. The theory of generational replacement has been extensively explored and is a common explanation for trends in turnout (Campbell et al. 1960; Butler and Stokes 1971; Nie, Verba, and Petrocik 1976). The core argument is based on the assumption that younger cohorts are distinctly different from older cohorts, leading to questions about what makes each cohort distinct. For example, Wattenberg (2007) attributed the high levels of apathy among young people to changes in media habits from generation to generation, which have led young people to be far less likely to be exposed to news about public affairs than elderly people. While Zukin et al. (2006) also found that changes in engagement between generations can be understood on the basis of the political, social, and economic environment within which each generation was raised, they challenged the assumption that young people are apathetic. Zukin et al. argued that while the age gap in political engagement *appears* to be widening, younger people may simply be participating in different ways; for instance, when civic engagement is defined as a voluntary activity, young people may be just as likely as older generations to be civically engaged (see also Dalton [2008]). Franklin (2004) also attributed differences in generational effects to context; young voters are more likely to adopt habit-forming behavior when they are enfranchised in elections that drive change. This results in a generational effect, where turnout varies by different cohorts depending under which circumstances they were socialized.

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3. Logit coefficients, which are not transformed into probabilities, are reported, making it difficult to assess the magnitude of the effects across samples.

Nickerson (2006) provided a different interpretation. Young people are less likely to vote because they are less likely to be mobilized by parties who find it more difficult to track them down to deliver their message. Because political campaigns run for a relatively short period of time, they are poorly suited for mobilizing young voters. Moreover, young people do not have significant resources to make campaign contributions, which leaves campaigns with little incentive to mobilize them. However, when contacted, young voters are actually equally responsive to mobilization efforts. Niemi and Hanmer (2010) also found evidence to support the view that mobilization is an important explanation for why young people vote. They also found, however, that other motivational factors, such as partisanship, were equally important.

In short, this brief literature review suggests a range of interpretations about why young people are disengaged in the political process. In the following study, we rely on data from the British and the American contexts to determine whether we can reach similar conclusions about youth and political engagement using data collected by different sampling methodologies and varying survey modes.

Data

The American National Election Studies (ANES) and the British Election Studies (BES) constitute two of the longest series of national election studies in the world. An ANES survey has been administered after every election since 1948, whereas a BES survey has been administered after every election since 1964.

They are the primary sources of data on electoral behavior in the United States and Britain. Funded by national research councils, they each constitute a significant investment and therefore consume a large proportion of the funding available in political science research. Since their inception, the ANES has employed a cross-section area probability sample and the BES has used a national probability sample. Both studies have been conducted with FTF interviews. In the 2000s, both national election studies also introduced an online panel. While traditionally the BES and ANES have used comparable sampling strategies, their online panels are sampled differently.

The BES online sample is a non-random design drawn from a larger opt-in panel recruited by YouGov UK. The online component of the BES studies is based on a panel design that includes an initial baseline survey administered two months before the election, followed by another interview on a random day during the campaign, and a final interview after the election. YouGov UK draws a quota sample from a panel of over 360,000 British adults who were initially recruited from a variety of sources. Respondents are selected on the basis of age, gender, social class, and the type of newspaper they read (upmarket, mid-market, red-top, or no newspaper). The data are then weighted by

these same attributes along with region, using targets derived from the census and the National Readership Survey. The data are also weighted by party identity, which is based on YouGov UK's own estimates from 80,000 responses to its other surveys conducted before and after the 2010 general election.[4] In comparison, the FTF surveys involve a clustered multistage probability design (see the appendix for details). Weights are used to correct for oversampling by region, marginality, and household size; age and sex are used to compensate for non-response (see Howat, Norden, and Pickering [2011]).

The 2012 ANES online sample, on the other hand, is drawn from the GfK KnowledgePanel, a panel recruited using either address-based sampling (ABS) or random-digit dialing (RDD). To avoid selection bias, respondents without a computer and Internet service were offered a free web appliance and free Internet service (ANES 2014). Hence, the ANES online sample has been designed more similarly to traditional public opinion surveys used in political science research, as compared to the BES online sample. Together, these election surveys allow for many types of comparisons. First, we can assess differences in responses between different survey modes within each election study. Second, we can compare differences across countries in both survey mode and sampling design.

One of the challenges in surveying younger people is that they are more difficult to reach. An analysis of the weights that are deposited for the 2010 BES and 2012 ANES supports this assumption. Surprisingly, however, younger respondents are underrepresented more in the online panels, which require larger weights to correct the distributions, than they are in the FTF surveys. As can be seen from online appendix table A, more weight is given to the youngest respondents in both online panels than in the FTF survey. Nearly all of those aged 18–24 and more than half of those aged 25–34 are given more weight in the BES online panel. In the ANES online panel, the weights are smaller, but about a third in the same age categories are given more weight to compensate for their underrepresentation. In contrast, in the ANES FTF sample, younger respondents, on average, are actually slightly overrepresented. Less than one-fifth of those in the youngest category in the ANES FTF are given more weight, compared to one-quarter of the online panelists in the same age group. Both the ANES and BES online samples over-represent older respondents, as does the BES FTF survey. The ANES FTF sample underrepresents the oldest respondents. The standard deviations for the weights are largest for the youngest respondents in the BES online survey. This indicates that any inferences about younger age groups will be based on smaller samples. If these samples do not reflect the true population, the weights will just inflate any bias rather than correct for it.

As table 1a reveals, online respondents report higher levels of political engagement than those interviewed FTF. In the BES online panel, 89 percent report being very interested in the campaign, compared to 79 percent in the

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4. See https://yougov.co.uk/about/panel-methodology/ for further details.

Table 1a. Political Engagement in the British and in the US General Elections (%)

British Election Study (BES)

	(Very) interested in the campaign			Civic duty			Attention to political events		
Age	FTF	Online panel	z	FTF	Online panel	z	FTF	Online panel	z
18–24	66.7 (189)	85.8 (395)	5.38**	38.2 (186)	74.8 (424)	8.65***	59.1 (186)	69.5 (420)	2.49*
25–34	76.6 (410)	89.0 (1,707)	6.66*	54.1 (410)	80.7 (1,836)	11.34***	69.1 (408)	70.5 (1,843)	0.57
35–44	81.5 (552)	87.4 (2,127)	3.57**	61.4 (552)	82.2 (2,278)	10.65***	70.3 (552)	66.9 (2,284)	−1.51
45–54	77.7 (528)	86.9 (2,478)	5.43**	68.9 (528)	85.5 (2,648)	9.20***	65.3 (528)	66.0 (2,656)	0.31
55–64	84.2 (530)	89.0 (3,409)	3.26**	76.0 (529)	87.3 (3,609)	6.93***	68.6 (529)	66.2 (3,615)	−1.12
65+	77.4 (847)	92.6 (2,264)	11.76**	87.2 (844)	92.3 (2,414)	4.49***	68.4 (846)	69.1 (2,411)	0.38
Total	78.6 (3,072)	88.5 (14,565)	14.76**	70.0 (3,065)	85.6 (13,220)	20.58***	67.8 (3,065)	67.5 (13,241)	−0.33

American National Election Study (ANES)

	(Very) interested in the campaign			Civic duty			Attention to political events		
Age	FTF	Online panel	z	FTF	Online panel	z	FTF	Online panel	z
18–24	72.4 (261)	74.4 (250)	0.51	27.5 (258)	32.4 (247)	1.19	68.9 (244)	68.8 (224)	−0.02
25–34	75.9 (394)	80.4 (486)	1.63*	36.0 (392)	40.8 (483)	1.46	79.9 (363)	65.8 (450)	−4.46**
35–44	82.0 (367)	84.6 (519)	1.02	42.1 (366)	49.3 (517)	2.13*	78.3 (350)	72.7 (480)	−1.83*
45–54	84.2 (348)	86.6 (759)	1.05	44.9 (345)	53.0 (758)	2.50**	82.2 (331)	76.5 (699)	−2.05*
55–64	85.5 (325)	90.1 (930)	2.26*	53.9 (323)	53.6 (931)	−0.08	85.9 (305)	79.9 (871)	−2.32*
65+	87.9 (298)	91.2 (912)	1.68*	55.1 (294)	58.7 (913)	1.09	88.1 (278)	84.5 (857)	−1.50
Total	81.4 (2,053)	86.7 (3,856)	5.41**	43.5 (2,036)	51.1 (3,849)	5.61**	80.7 (1,927)	76.9 (3,581)	−3.30**

SOURCE.—British Election Study, 2010, and American National Election Study, 2012.

$*p < 0.05$; $**p < 0.01$; age group n in parentheses.

Table 1b. Reported Turnout in the British and in the US General Elections (%)

Age	British Election Study (BES)				American National Election Study (ANES)			
	FTF	Online panel	Difference	t	FTF	Online panel	Difference	t
18–24	61 (188)	84 (426)	23	7.95**	48 (239)	54 (330)	6	1.78
25–34	67 (410)	87 (1,862)	20	11.67**	59 (294)	63 (393)	4	0.91
35–44	76 (553)	90 (2,296)	14	10.21**	71 (345)	74 (581)	3	2.46*
45–54	80 (526)	92 (2,667)	12	9.10**	76 (317)	74 (618)	−2	2.47*
55–64	82 (530)	93 (3,618)	11	7.50**	78 (327)	77 (673)	−1	1.48
65+	88 (847)	95 (2,415)	7	7.64**	76 (350)	81 (683)	5	2.90*
Total	77 (3,054)	91 (13,284)	14	22.20**	69 (1,871)	72 (3,578)	3	7.21**
Difference from actual turnout	11	25			11	14		

SOURCE.—British Election Study, 2010 (with weights), and American National Election Study, 2012 (with weights). Actual voter turnout in the UK, reported by the International Institute for Democracy and Electoral Assistance, is 66 percent. In the US, actual voter turnout, reported by the United States Election Project at the University of Florida, is 58 percent.

*$p < 0.05$; **$p < 0.01$; age group n in parentheses.

FTF survey. The online panel also has a larger percentage of respondents who express a strong sense of civic duty. In the BES online survey, 86 percent agree that it is a "citizen's duty to vote," compared to 70 percent in the FTF survey. The only engagement measure with no significant difference between the two samples is attention to political events. In both samples, two-thirds of respondents report seeing a political debate. Nevertheless, substantial gaps are evident among the youngest groups across all three measures of engagement in the BES. In the ANES, the online panelists also appear to be more engaged, but the differences are smaller and in some cases not statistically significant, particularly among the youngest respondents. In the ANES, the online panel is significantly more attentive to the campaign than the FTF, with a difference of 5 percent. The ANES data show a similar pattern on civic duty, with 51 percent expressing that voting is a duty, compared to 44 percent of the FTF respondents. Slightly more, however, report following political events in the FTF sample (81 percent) than online (77 percent). In sum, respondents in the online panels appear to be more interested in politics, are more civically minded, and are more likely to report voting than those in FTF surveys using probability sampling.

Table 1b displays reported turnout by age groups in both election studies. The survey estimates, which are weighted to correct for differences from known targets (as explained above), are substantially higher than the actual turnout.[5] It is well known that respondents have an incentive to give a socially desirable response, and therefore report voting when they have not actually done so (Karp and Brockington 2005). The results from the British FTF survey are consistent with this expectation—even though the BES question, like the ANES question, has been rephrased to reduce this over-reporting (see the appendix). While the actual turnout in the 2010 election was 66 percent (up from 61 percent in 2005), 77 percent reported having voted in the FTF survey. When checked against the electoral register in local authority offices, 29 percent of the validated non-voters had reported voting, indicating that the discrepancy observed in table 1b can be partly attributed to over-reporting. We assume that, in the absence of an interviewer, online respondents are less likely to over-report voting. Unfortunately, neither the ANES nor the BES conducted a voter validation study for online respondents, which makes it impossible to test this hypothesis.[6] The only study, to our knowledge, to have investigated voter validation for respondents to an online survey is Ansolabehere and Hersh (2012), who examined the 2008 Cooperative Congressional Election Study (CCES).[7] They found that about half of the validated non-voters claim to have voted, which raised questions about the assumption that self-administered surveys reduce the incentive to give a socially desirable response.

5. Various weights were deposited with the YouGov UK data, but they all produce similar results.
6. At the time of writing, the ANES had not completed a validation study for the FTF respondents in 2012, so it is not possible to compare the rate to the BES FTF.
7. Sanders et al. (2007) report that they were in the process of validating a sample of the 2005 BES opt-in respondents but these data have not been released and are not available for analysis.

In any event, if the rate of over-reporting does not vary across modes, then we should not observe substantial differences between the FTF and online samples. Table 2a indicates only a 3 percent difference in reported turnout between the ANES FTF and online samples. However, the difference in reported turnout between the two BES samples is 14 percent. Of those in the BES online sample, 91 percent reported voting, compared to only 77 percent in the FTF sample.[8] It is unlikely that this difference can be explained only by a higher rate of over-reporting in the BES online panel; if, so, the online sample would have over-reported voting at an 80 percent greater rate than the FTF sample. Moreover, we have no theoretical reason to expect a higher rate of over-reporting in online surveys. All of this suggests that the YouGov UK panel has a greater selection bias. First, it is likely that politically engaged respondents are more likely to sign up and complete an online survey. It is also more likely that respondents who come from a panel that has been carried over from successive surveys are likely to be more biased toward political engagement, either because of testing effects or because those who remain in the panel are different from those lost through attrition. Of course, this may also be true of the ANES online sample, although this could be mitigated by the introduction of fresh respondents who do not self-select into the panel.[9]

As table 1a reveals, the discrepancies between the two BES modes are greatest in the youngest age categories, suggesting that the youngest respondents in the online samples are far more engaged than those interviewed FTF. This has obvious implications for inferences about the relationship between age and reported voter turnout, which we will explore in more detail below. While the difference in reported turnout between the two ANES modes is also the greatest in the youngest age category, the discrepancies between survey modes in different age categories are much more comparable.

Comparing Results from Face-to-Face and Online Panels

When Sanders et al. (2007) examined mode effects in the 2005 BES, they pooled the FTF and online panels together and estimated models of vote choice and turnout that include interactions between the samples and each of the variables. They interpret the lack of significance in many of the interaction terms as evidence that the samples produce the same results. Null

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8. In their analysis of the 2005 data, Sanders et al. (2007, 264) report a turnout rate of 84 percent in the opt-in panel, compared to 72 percent in the FTF survey. They attribute the inflated figures to higher political interest in the opt-in panel.

9. The average respondent in the ANES online panel had previously completed more than 150 surveys; one respondent even completed as many as 923 surveys. The BES does not include a variable that indicates how many surveys a respondent has completed online, so it is not possible to investigate whether respondents who are repeatedly surveyed, either on political issues or on other types of issues, are more engaged than fresh respondents. Nor is it possible to control for any possible effects.

hypothesis testing, however, does not tell us what we want to know, which is whether the substantive impact of variables of theoretical interest has changed. We believe the best approach is to estimate separate models for each sample and compare the magnitude of the effects to determine whether each sample does, in fact, produce the same results. As an initial investigation of the relationship between age and political engagement, we estimated models predicting interest in the campaign, attention to political events, civic duty, and turnout (see the appendix for question wording and results).

Figures 1a and 1b illustrate the relationship between age and these items, based on estimated probabilities derived from logit models. The figures reveal a clear relationship between age and all four of the measures of political engagement in both the FTF and online modes in the ANES, while the relationship appears mixed in the BES, depending on the item and the mode. In figure 1a, which illustrates the results for the BES, the effects of age are strongest on civic duty and the difference between the two modes is the widest. This means that the magnitude of the effects varies considerably by mode within the BES. The oldest citizens in the online survey are twice as likely to feel a strong sense of duty, while in the FTF survey, the oldest citizens are three times as likely to feel a strong sense of civic duty.[10] The online data suggest a positive relationship between age and campaign interest that increases from .47 for the youngest citizens to .63 for the oldest, but the FTF results suggest no relationship. The online data suggest little relationship between age and attention to political events, while the FTF data suggest a weak negative relationship.

The estimates in both figures show that the likelihood of voting increases with age, but the BES online sample is a clear outlier. In the ANES, the estimates from both modes overlap with each other and fall within the confidence intervals, indicating that the same relationship is observed in each sample. In contrast, while the relationship is still positive in the BES online survey, it is much weaker than the estimates derived from the BES FTF sample, largely because the data are more skewed. The youngest age group has a probability of voting of .83 in the online panel, compared to .72 in the FTF panel, while the oldest citizens in both samples converge at a likelihood exceeding .94.

The analysis above suggests that age is an important determinant of political engagement, but the magnitude of the effects varies substantially across the samples. To examine whether the data produce different interpretations of the factors that are known to influence turnout (e.g., party identification, campaign interest, mobilization and attention to it, civic duty, efficacy, gender, education, and race/ethnicity), we estimate a series of multivariate models that include the three measures of political engagement along with other variables known to have an influence on voting.

10. The estimates are derived from an ordered logit model and reflect the probability of being in the highest category.

As stated above, our primary interest is not simply to test whether the two samples produce different results. Rather, our goal is to discern whether the substantive impact of variables of theoretical importance is different across the samples, which are based on different survey mode and sampling methodologies. Therefore, we also report differences that illustrate the magnitude of the effects of each of the independent variables, holding all other variables constant at their means or modes. We also report the results of a chi-square test that indicates whether the estimates across the two samples are statistically significant.[11]

The results in tables 2a and 2b reveal that the estimates vary in magnitude and, in some cases, reverse direction between samples. More importantly, the differences between the estimates across survey modes are significantly greater in the case of the BES, compared to the ANES. While some differences exist in the coefficients across the two survey modes in the ANES, particularly in the case of efficacy and blacks, none of the discrepancies between coefficients are statistically significant.[12] Also, the inferences one would make based on either the ANES FTF or online sample would be largely the same: campaign interest and civic duty are the most powerful predictors of voter turnout, followed by mobilization and party identification.

In contrast, the differences between the coefficients between the two samples are greater in the BES. In table 2a, for example, which displays the results from the BES, the coefficient for female is positive but statistically insignificant in the FTF survey, and is negative and significant (at $p < .01$) in the online panel. The chi-square test of the differences between the coefficients indicates that the estimates are statistically different. Sanders et al.'s (2007) findings, based on data from 2005, mirror those reported here for gender, even though their model specification differs. This suggests something systematic about gender differences in turnout between the BES samples. In comparison, in the United States, the coefficient for female is positive, though not significant, in both the FTF and online surveys (table 2b). Aside from gender, the data from the BES FTF survey suggest that ethnicity is also a significant factor that explains voting (although it does not predict voting in the BES online panel). The coefficient for whites is nearly three times as large as the estimate from the online panel. Whites have a probability of voting that is nine percentage points greater than non-whites, whereas the BES online survey suggests that ethnicity has no effect. However, the difference between the samples is not statistically significant.

The two BES samples also lead to different inferences about the effects of campaign interest and civic duty. As with ethnicity, the effects of campaign

11. We use the suest command in Stata, which combines the estimation results—parameter estimates and associated (co)variance matrices—stored under namelist into one parameter vector and simultaneous (co)variance matrix of the sandwich/robust type.
12. African Americans and those with higher levels of efficacy are more likely to vote in the FTF when controlling for other factors, which is largely consistent with previous research. This finding is not significant in the online panel.

interest are stronger in the BES FTF survey, leading one to conclude that interest in the campaign is an important explanation for why citizens vote. In contrast, the BES online data would suggest that interest in the campaign, while statistically significant, is not nearly as important as civic duty, which emerges as the only variable that really matters.

The literature on youth and political engagement discussed above suggests factors that influence turnout vary by age. For example, it might be more difficult to mobilize younger voters because they may be less receptive to party appeals. To address this question, we also model turnout for the youngest age group (18–35) in tables 3a and 3b. As with the previous findings, the chi-square test indicates that the two BES samples for the youngest cohort produce significantly different estimates for some of the primary variables of theoretical interest; in contrast, no significant differences across survey modes are found when estimating the same models with the two ANES samples. For example, the results from the BES FTF survey suggest that campaign interest can be a substantial motivator for the youngest age group (table 3a). Young respondents who are not at all interested in the election have a probability of voting of .27, compared to .90 among those who are very interested. In comparison, we observe very little change in the estimated probabilities (.89 to .96) derived from the BES online panel. In the case of the ANES, the change in probabilities is comparable in both modes: young citizens who report low levels of campaign interest have a .43 (FTF) and .50 (online) probability of voting, compared to .74 (FTF) and .73 (online) for those who are very interested in the campaign (table 3b).

The results from the BES online panel also suggest that young citizens who identify with the Labour Party are less likely to report voting than young conservatives, but the BES FTF survey suggests otherwise—indeed, the sign for Labour identifiers flips and is only marginally statistically different across the samples ($p < .082$). Similarly, the sign flips for gender, although the difference between the estimate is not statistically significant. Both the ANES FTF and online surveys suggest no gender difference in reported youth voting. While the sign for Democrats flips, the coefficient of neither the FTF survey nor the online surveys is statistically significant.

Both the BES and ANES FTF surveys produce consistent estimates about the role of mobilization on reported youth turnout. In both cases, the FTF results suggest that mobilization efforts can substantially increase a young citizen's likelihood of reported voting. In contrast, both online panels suggest that mobilization makes little difference. The differences between the FTF and online estimates, however, are not statistically significant.

Discussion

We have attempted to move beyond comparisons of responses from FTF and online samples to investigate whether results obtained from different
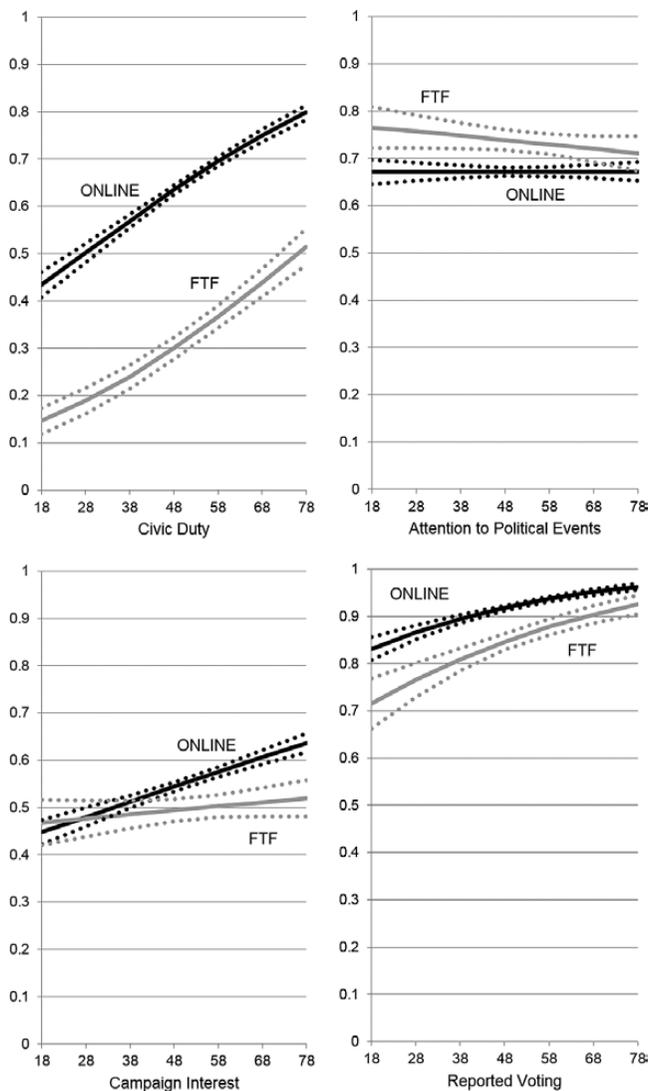
Figure 1a. Estimated Probabilities of Political Engagement by Age (BES 2010). Broken line represents 95 percent confidence intervals.

survey methodologies lead to different interpretations of theoretical interest. Moreover, we have also tried to differentiate, to the extent possible, sampling effects from mode effects. We have focused on the questions of how age affects reported vote, which has a long and established history of scholarly interest. Furthermore, this topic provides a conservative test, as online surveys should
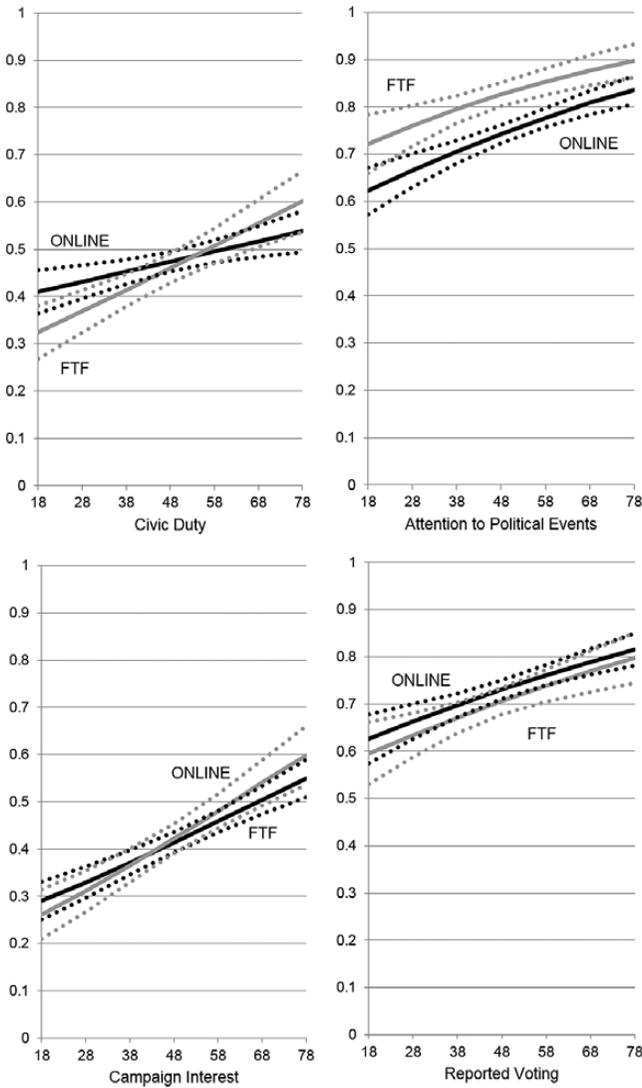
Figure 1b. Estimated Probabilities of Political Engagement by Age (ANES 2012). Broken line represents 95 percent confidence intervals.

be better suited for examining this question, given assumptions about the ability to reach younger respondents and reductions in error associated with measuring political engagement. We find that varying sampling approaches, rather than survey mode, produces different interpretations. Overall, the results from the surveys employing probability sampling, whether they are administered

Table 2a. Explaining Turnout in Britain (all respondents)

	FTF			Online			Difference
	Coef.	S.E.	Change	Coef.	S.E.	Change	Chi²
Age (in 10s)	0.19**	(0.05)	0.12	0.12**	(0.04)	0.02	1.39
Party ID: Labour	−0.11	(0.20)	−0.01	−0.36*	(0.16)	−0.01	0.94
Party ID: Liberal Democrat	0.09	(0.25)	0.01	−0.09	(0.20)	−0.00	0.29
Party ID: Other/none	−0.15	(0.26)	−0.01	−0.45**	(0.14)	−0.01	1.03
Campaign interest	0.78**	(0.10)	0.31	0.33**	(0.07)	0.04	13.20**
Civic duty	0.69**	(0.07)	0.38	1.06**	(0.04)	0.52	19.01**
Mobilization: Party contact	0.49**	(0.17)	0.04	0.43**	(0.10)	0.01	0.09
Follow political events (TV)	0.14	(0.18)	0.01	0.46**	(0.12)	0.01	2.32
Efficacy: Influence on politics	0.06	(0.04)	0.04	0.04	(0.03)	0.01	0.13
Female	0.12	(0.17)	0.01	−0.38**	(0.10)	−0.01	6.51**
Higher education	−0.11	(0.20)	−0.01	0.08	(0.12)	0.00	0.65
White (ethnicity)	0.85**	(0.28)	0.09	0.30	(0.26)	0.01	2.08
Constant	5.23	(0.54)		3.49	(0.40)		
Wald chi²	246.57			1131.49			
Prob > chi²			0.00			0.00	
Pseudo R^2	0.25			0.34			
N	2321			11893			

SOURCE.—British Election Study, 2010 (with weights).

*$p < 0.05$; **$p < 0.01$; coefficients are logistic regression estimates with standard errors in parentheses. Change represents the maximum change in probability of the independent variable, holding all other variables constant at their mean or mode.

Table 2b. Explaining Turnout in the US (all respondents)

	FTF			Online			Difference
	Coef.	S.E.	Change	Coef.	S.E.	Change	Chi^2
Age (in 10s)	0.11*	(0.05)	0.15	0.12**	(0.04)	0.15	0.07
Party ID: Democrat	−0.16	(0.23)	−0.03	0.15	(0.15)	0.02	1.20
Party ID: Other/none	−0.50*	(0.21)	−0.11	−0.39**	(0.14)	−0.07	0.19
Campaign interest	0.48**	(0.11)	0.20	0.37**	(0.09)	0.15	0.65
Civic duty	0.32**	(0.08)	0.13	0.34**	(0.06)	0.12	0.06
Mobilization: Party contact	0.38*	(0.19)	0.08	0.39**	(0.12)	0.07	0.00
Follow political events (TV)	0.22	(0.18)	0.05	0.31*	(0.13)	0.05	0.14
Efficacy: Influence on politics	0.16*	(0.06)	0.13	0.03	(0.05)	0.02	2.67
Female	0.05	(0.15)	0.01	0.14	(0.11)	0.02	0.23
Higher education	0.39*	(0.18)	0.08	0.60**	(0.12)	0.10	0.85
White (ethnicity)	0.42**	(0.18)	0.09	0.35*	(0.15)	0.06	0.10
Black (ethnicity)	0.52*	(0.25)	0.10	0.10	(0.23)	0.02	1.60
Constant	−2.24**	(0.41)		−1.93**	(0.31)		
Wald chi^2	108.60			202.73			
Prob > chi^2			0.00			0.00	
Pseudo R^2	0.13			0.10			
N	1,782			3,503			

SOURCE.—American National Election Study, 2012 (with weights).

*$p < 0.05$; **$p < 0.01$; coefficients are logistic regression estimates with standard errors in parentheses. Change represents the maximum change in probability of the independent variable, holding all other variables constant at their mean or mode.

Table 3a. Explaining Turnout in Britain (young respondents, 18–24)

	FTF			Online			Difference
	Coef.	S.E.	Change	Coef.	S.E.	Change	Chi²
Party ID: Labour	0.17	(0.40)	0.03	−0.75*	(0.34)	−0.04	3.03
Party ID: Liberal Democrat	0.22	(0.42)	0.03	0.19	(0.37)	0.01	0.00
Party ID: Other/none	0.16	(0.46)	0.03	−0.66*	(0.30)	−0.04	2.22
Campaign interest	1.06**	(0.22)	0.63	0.34*	(0.14)	0.07	7.74**
Civic duty	0.65**	(0.14)	0.47	0.88**	(0.09)	0.46	2.04
Mobilization: Party contact	0.73*	(0.32)	0.12	0.25	(0.20)	0.01	1.60
Follow political events (TV)	0.48	(0.37)	0.08	0.73**	(0.21)	0.04	0.36
Efficacy: Influence on politics	0.06	(0.07)	0.09	0.06	(0.05)	0.03	0.00
Female	0.11	(0.32)	0.02	−0.47*	(0.21)	−0.02	2.34
Higher education	−0.37	(0.39)	−0.06	0.32	(0.21)	0.02	2.49
White (ethnicity)	0.97*	(0.45)	0.19	0.41	(0.35)	0.02	0.97
Constant	6.05	(0.97)		2.77	(0.63)		
Wald chi²	77.20			246.44			
Prob > chi²			0.00			0.00	
Pseudo R^2	0.27			0.31			
N	407			1,932			

SOURCE.—British Election Study, 2010 (with weights).

*$p < 0.05$; **$p < 0.01$; coefficients are logistic regression estimates with standard errors in parentheses. Change represents the maximum change in probability of the independent variable, holding all other variables constant at their mean or mode.

Table 3b. Explaining Turnout in the US (young respondents, 18–24)

	FTF			Online			Difference
	Coef.	S.E.	Change	Coef.	S.E.	Change	Chi^2
Party ID: Democrat	−0.08	(0.44)	−0.02	0.13	(0.30)	0.03	0.16
Party ID: Other/none	−0.79*	(0.40)	−0.19	−0.41	(0.27)	−0.10	0.63
Campaign interest	0.66**	(0.21)	0.31	0.50**	(0.17)	0.23	0.37
Civic duty	0.34*	(0.16)	0.16	0.26*	(0.13)	0.12	0.13
Mobilization: Party contact	0.66	(0.46)	0.15	0.01	(0.26)	0.00	1.52
Follow political events (TV)	0.37	(0.31)	0.09	0.36	(0.23)	0.08	0.00
Efficacy: Influence on politics	0.22*	(0.10)	0.21	0.03	(0.10)	0.03	1.69
Female	0.07	(0.28)	0.02	0.19	(0.22)	0.04	0.10
Higher education	0.77*	(0.34)	0.17	0.75**	(0.24)	0.17	0.00
White (ethnicity)	0.04	(0.30)	0.01	0.17	(0.27)	0.04	0.09
Black (ethnicity)	0.46	(0.38)	0.11	−0.02	(0.40)	−0.01	0.75
Constant	−2.47**	(0.63)		−1.71**	(0.57)		
Wald chi^2	61.20			48.75			
Prob > chi^2			0.00			0.00	
Pseudo R^2	0.17			0.08			
N	566			654			

SOURCE.—British Election Study, 2010 (with weights), American National Election Study, 2012 (with weights).

*$p < 0.05$; **$p < 0.01$; coefficients are logistic regression coefficients with standard errors in parentheses. Change represents the maximum change in probability of the independent variable holding all other variables constant at their mean or mode.

face-to-face or online, are more consistent with theoretical expectations about age, partisanship, and mobilization than the data produced from a non-probability sample.

In particular, age emerges as an important determinant of political engagement in the ANES, regardless of the mode of the survey. Similar results are found in the BES FTF survey. In contrast, the BES opt-in panel minimizes the effects of age on many of the items, including turnout. When age is held constant, the two BES samples produce different interpretations about what influences turnout among the youngest citizens. The results from both the ANES and the BES FTF surveys are more consistent with Niemi and Hanmer's (2010) finding that mobilization and partisanship were equally important in predicting whether young people vote, while the data from both online samples suggest that mobilization does not matter. Furthermore, because of the lack of variance in reported turnout in the BES online panel, the effects of many of the variables of theoretical interest are minimized, leading one to conclude that, aside from civic duty, none are that important.

These findings are clearly at odds with Sanders et al. (2007), who concluded that "using either the probability or the Internet sample yields almost identical inferences about the determinants of turnout" (272). While it is possible that the 2010 BES has a greater bias than the 2005 BES, the approach taken by Sanders et al. pools the two data sets together and controls for many of the differences between them, thus minimizing the differences. Furthermore, the authors' focus on significance tests overlooks the substantive impact of the variables, which is not easy to assess because the logit coefficients are not transformed into probabilities. The focus on statistical significance rather than substantive impact is a common problem in political science (Gill 1999).

We also tested whether the coefficients obtained from the different samples are significantly different, and found differences for some variables of central theoretical importance. Indeed, although some estimates differ statistically across samples, their substantive impact varies. More telling, the results from the opt-in online panel produce different theoretical interpretations of what motivates citizens to report voting. If these were the only data available, then it would provide a different picture than what is captured with more traditional FTF data or online panel data collected using probability sampling.

While the results of this research point to specific problems of using nonprobability opt-in panels to study political engagement, we find no evidence that more sophisticated online survey data collection, relying on more traditional probability sampling, would lead to similar problems. We assume that one of the problems with the opt-in panel is that it clearly overestimates the proportion of those who are politically engaged. This is likely to be the result of non-observation error, which has the potential to be more severe with opt-in online panels using nonprobability sampling (Baker et al. 2010). Response bias is one source of error that is likely to be exasperated by the use of opt-in panels that already reflect the demographic bias of Internet users, such as high educational

attainment (Dever, Rafferty, and Valliant 2008). While financial rewards might provide an initial incentive to join an online panel, interest in the survey topic is likely to be a key factor that determines what surveys a panel respondent chooses to complete. This is especially problematic when the response is correlated with the survey variables of interest (see Groves et al. [2006]), such as political engagement. While YouGov covers a broad range of topics in market research, the company frequently asks questions about politics (indeed, politics is embodied in YouGov's name itself). Selection bias may occur as participants opt into the panel, wanting to offer their voice on salient political issues; conversely, selection bias may occur when politically averse panelists decide to opt out of surveys that seem to be of little interest to them. In contrast to the YouGov UK survey, the ANES study was described to participants using a general name that sounded less political than "American National Election Studies."

While we have focused only on the question of political engagement, we suspect that mode and sampling design could be factors with other questions of theoretical importance. For example, scholars debate the causes and consequences of political cynicism. Respondents who are cynical about politics may be less inclined to complete an online survey. If this is the case, then online surveys that rely on nonprobability samples may lead researchers to draw different inferences about cynicism than if they were to rely on more conventional probability samples. While we do not examine potential problems of studying political cynicism with opt-in online panels, it offers another possible research question of theoretical interest. Of course, it may well be that different variables will produce different results. Until we know more about these outcomes of interest, election studies should continue to experiment with mixed-mode surveys.

Response bias is a potential problem with all types of surveys, including FTF surveys. However, response bias is not likely to be as problematic with probability samples because potential respondents do not opt in and are not able to selectively participate in a range of survey topics. Moreover, response bias can be reduced though the use of intangible rewards that can be offered to potential respondents, such as the value of participating in an important research project (Dillman 1978). Sponsorship by a university or government gives the researcher further legitimacy, a strategy actively used by the ANES team when recruiting online panelists (ANES 2014). Commercial enterprises do not offer these rewards in exchange for social interaction.

In sum, while online panels have many advantages, they may not be suited for addressing certain types of questions. The evidence from this analysis suggests that, at least in the British context, data gathered from opt-in online panels can lead to different inferences, and thus may not be appropriate to examining questions about political engagement. On the other hand, more sophisticated and more costly online surveys that rely on probability sampling appear to be a reasonable addition, and a possible alternative, to the even costlier FTF surveys.

Appendix 1. Information on the 2010 British Election Study and the 2012 American National Election Study

The British Economic and Social Research Council (ESRC) funded the 2010 British Election Study. Data collection for the face-to-face interviewing was conducted by the University of Essex together with the British Market Research Bureau (BMRM), and the data collection for the Internet interviewing was performed by YouGov UK (for more information, see Howat, Norden, Pickering [2011]).

The ANES 2012 Time Series Study, which we used to measure voter turnout and political engagement in the United States, is based upon work supported by the National Science Foundation under Grants SES-0937715 and SES-0937727, the University of Michigan, and Stanford University. Abt SRBI conducted data collection for the face-to-face interviewing, and GfK (formerly Knowledge Networks) performed the data collection for the Internet interviewing.

1. Population, Sample, and Fieldwork

The eligible population for the 2010 British Election Study face-to-face interview was those residents in private households in Great Britain (England, Scotland, and Wales), south of the Caledonian Canal, aged 18 years or older. The Primary Sampling Unit was the parliamentary constituency stratified by marginality. In total, 200 constituencies were selected, of which 149 were in England, 29 in Scotland, and 22 in Wales. Within each constituency, two wards were selected with a probability proportionate to size. Within each ward, the Residential Postal Address File (PAF) was used to provide a sample frame of addresses. Addresses were selected from the complete list using a fixed sampling interval and random start. Within each selected dwelling unit, one person, aged 18 and over, was selected using a preprinted Krish grid. Fieldwork for the pre-election wave was carried out between January 23 and April 18, 2010; the post-election wave was carried out between May 7 and September 5, 2010, in homes by interviewers from TNS-BMRB (for more information, see Howat, Norden, Pickering [2011]).

The Internet study was conducted using the rolling campaign panel survey (RCPS) design, consisting of a pre-campaign survey, campaign survey, and post-campaign survey. The campaign survey was carried out online by YouGov UK between April 8 and May 5, 2010. The post-election Internet interviews were conducted immediately after the general election (Whiteley, Harold, David, & Marianne 2013).

The ANES 2012 Time Series was a dual-mode survey (face-to-face and Internet) using two independent samples. The target population for the two samples was US citizens aged 18 or older, with oversampling of black and Hispanic respondents. For the face-to-face mode, the ANES utilized address-based sampling with in-person recruitment and interviews. Fieldwork for the face-to-face

pre-election wave was carried out between September 8 and November 5, 2012; the post-election wave was conducted between November 7, 2012, and the January 13, 2013 (for more information, see ANES [2014]). The 2012 ANES Internet respondents were members of the GfK/Knowledge Networks KnowledgePanel, which is a large online panel of survey respondents who are invited to complete surveys several times each month on a variety of topics. Panelists are recruited using two probability sampling methods: address-based sampling and random-digit dialing. A sample of KnowledgePanelists selected from the KnowledgePanel received invitations to participate in the 2012 ANES Time Series Survey. This sample was limited to US citizens who would be at least 18 years old by Election Day, November 6, 2012, and was limited to one person per household (for more information about the construction of the KnowledgePanel, see ANES [2014]). Fieldwork for the face-to-face pre-election wave was carried out between October 11 and November 6, 2012, and the post-election wave was carried out between November 29, 2012, and January 24, 2013 (for more information, see ANES [2014]).

2. Response Rates

The BES completed 1,935 FTF interviews in the pre-election wave, resulting in a 56 percent response rate. In the post-election wave, 1,498 respondents completed interviews, resulting in a 77 percent retention rate. An additional 1,577 new respondents were also interviewed FTF after the election, with a 49 percent response rate.

The sample size of the BES Internet panel was 16,816 for the pre-campaign interview; 14,973 for the campaign interview; and 13,356 for the post-election interview. The pre-campaign-campaign panel retention rate was 89 percent, the campaign-post-election panel retention rate was 91 percent, and the pre-campaign-post-election panel retention rate was 79 percent. Response rates for the Internet survey were not provided.

The ANES completed 2,056 face-to-face interviews, with a response rate of 38 percent. The response rate for the Internet sample is a function of the recruitment of panel members, the retention of panelists from the time of recruitment to the point at which they were invited to take the ANES survey, and the response to those survey invitations. The response rate overall is about 2 percent (for more information, see ANES [2014]). The panel retention rate for the ANES face-to-face component was 94 percent, and 93 percent for the online survey (for more information, see ANES [2014]).

3. Question Wording

Turnout
BES: Talking to people about the general election on May 6, 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, voted; No, did not vote]

ANES: 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: One, I did not vote (in the election this November); Two, I thought about voting this time, but didn't; Three, I usually vote, but didn't this time; or Four, I am sure I voted?

Campaign Interest

BES: How interested were you in the general election that was held on May 6 this year? [Not at all interested; Not very interested; Somewhat interested; Very interested]

ANES: Some people don't pay much attention to political campaigns. How about you? Would you say that you have been [VERY MUCH interested, SOMEWHAT interested or NOT MUCH interested/NOT MUCH interested, SOMEWHAT interested or VERY MUCH interested] in the political campaigns so far this year?

Civic Duty

BES: Please say how far you agree or disagree with the following statement. I would be seriously neglecting my duty as a citizen if I didn't vote. [Strongly disagree; Disagree; Neither agree nor disagree; Agree; Strongly agree]

ANES: Different people feel differently about voting. For some, voting is a choice—they feel free to vote or not vote, depending on how they feel about the candidates and parties. For others, voting is a duty—they feel they should vote in every election no matter how they feel about the candidates and parties. For you personally, is voting mainly a choice, mainly a duty, or neither a choice nor a duty?

Party Identification

BES: Generally speaking, do you think of yourself as Labour, Conservative, Liberal Democrat, or what?

[Party ID: Conservative (reference category); Party ID: Labour; Party ID: Liberal Democrat; Party ID: other/none—Scottish National Party/Plaid Cymru/Green Party/United Kingdom Independence Party/British National Party/Other/No—none/Don't know]

ANES: Generally speaking, do you usually think of yourself as a [DEMOCRAT, a REPUBLICAN/a REPUBLICAN, a DEMOCRAT], an INDEPENDENT, or what? [Party ID: Republican (reference category); Party ID: Democrat; Party ID: Independent/other/none: no preference/independent/other party]

Mobilization: Party Contact

BES: Have any of the political parties contacted you during the past month? [Yes; No]

ANES: During the campaign, did a party or candidate contact you in person or by any other means? [Yes; No]

Follow Political Events (debates)

BES: Did you see or hear all or part of any of the three nationally televised debates among the party leaders that were held during the election campaign? [Yes; No]

ANES: Did you watch any programs about the campaign on television? [Yes; No]

Efficacy: Influence on Politics

BES: On a scale from 0 to 10, where 10 means a great deal of influence and 0 means no influence, how much influence do *you* have on politics and public affairs?

ANES: How much can people like you affect what the government does? [Not at all; A little; A moderate amount; A lot; A great deal]

Age

BES: What is your year of birth? (age in years)

ANES: R age on interview date (age in years)

Female

BES: What is your gender? [Female; Male (reference category)]

ANES: Are you male (reference category) or female?

Higher Education

BES: What is the highest qualification you have? [Postgraduate degree/ University or CNAA first degree, e.g., BA, BSc/University or CNAA diploma/ Teaching qualification/Nursing qualification/Scottish higher education qualification; GSCE d–g CSE grade 2–5 O level d–e/City & guilds level 2nvq/svq2/ GSCE a*–c CSE grade 1 O level grade a–c/Scottish standard grades ordinary bands/City & guilds level 2nvq/svq2/Recognized trade apprenticeship/A level/ Onc/ond city & guilds level 3 nvq/svq3/Clerical or commercial qualification/ Youth training certificate/Hnc/hnd city & guilds level 4 nvq/svq 4/5/Other technical professional or higher qualification]

ANES: SUMMARY—R level of highest education (group) [Bachelor's degree/Graduate degree; Less than high school credential/High school credential/Some post high school, no bachelor's degree]

Ethnicity/Race

BES: To which of these groups do you consider you belong? [White non-Hispanic; Black non-Hispanic; Hispanic/Other non-Hispanic (reference category)]

ANES: SUMMARY—R race and ethnicity group. [White non-Hispanic; Black non-Hispanic;Hispanic/Other non-Hispanic (reference category)]

Supplementary Data

Supplementary data are freely available online at http://poq.oxfordjournals. org/.

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