

Can Debates Matter?

Evidence from the 2024 Biden-Trump Debate

Alan S. Gerber^{*1}, Gregory A. Huber², Mackenzie Lockhart³, Douglas Rivers⁴, Jack D. Walker II⁵

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How much does a large and unexpected revelation of candidate quality affect vote choice? We estimate the effect of the June 2024 debate between Joe Biden and Donald Trump, in which Biden's poor performance was widely viewed as leading to his withdrawal from the race. Using a large-scale panel dataset, we estimate a 1.1-percentage-point decline in Biden's support post-debate, as well as significant effects on other voting attitudes and behaviors, some of which are novel in campaign events research. Our panel randomly staggered post-debate measurement, which we use to test for effects that may develop over time. We find no evidence for slowly developing effects. Although prior research finds that most campaign events do not matter, our results demonstrate that extreme cases that arguably reveal new information can alter candidate quality assessments and vote choice, suggesting a likely upper bound on effects of debates in the current environment.

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*Authors are listed in alphabetical order.

¹ Corresponding Author: Sterling Professor of Political Science, Institution for Social and Policy Studies, Yale University. Email: alan.gerber@yale.edu.

² Forst Family Professor of Political Science, Institution for Social and Policy Studies, Yale University. Email: gregory.huber@yale.edu.

³ Postdoctoral Associate, Institution for Social and Policy Studies, Yale University. Email: mackenzie.lockhart@yale.edu.

⁴ Professor of Political Science, Hoover Institution, Stanford University. Chief Scientist, YouGov. Email: rivers@stanford.edu.

⁵ Pre-doctoral Fellow, Institution for Social and Policy Studies, Yale University. Email: jack.walker@yale.edu.

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The presidential debate between Democratic candidate Joe Biden and Republican candidate Donald Trump on June 27, 2024, was widely viewed as leading to Biden's subsequent withdrawal from the race. Commentators were quick to identify Biden as "meandering and mumbling" in the debate, deepening concerns about his age and fitness to hold office (Goldmacher & Swan 2024). Despite the candidates' disagreement on a broad array of policies, it was the contrast in their presentations that dominated the post-debate news landscape. Indeed, almost immediately the debate led to discussions about whether Biden should remain the Democratic nominee. A little more than three weeks later, on July 21, 2024, Biden formally withdrew.

It is rare that significant novel information comes to light during salient election events, but the June 2024 debate constituted a striking and almost unique natural experiment revealing unexpected negative information about a candidate's physical and mental acuity. As a result, it presents an opportunity to examine how voters updated their assessments of Biden and their willingness to vote for him, as well as studying the effect of a salient debate more broadly.

The effect of the debate on elite views was clear. Although Biden's campaign sought to reassure the Democratic Party and the American public writ large that Biden was capable (Nicholas et al. 2024), a steady barrage of pundits, donors, and media organizations continued to raise concerns about Biden's fitness in the weeks following the debate. Key Democratic Party elites privately worked to urge Biden's withdrawal in the aftermath of his debate performance (Beech et al. 2024). But did the Biden-Trump debate matter for mass public opinion? Extensive scholarship has considered the effect of debates and other campaign events, and researchers broadly agree that these events usually produce negligible effects on vote choice and instead reinforce partisan predispositions (e.g., Benoit

& Hansen 2006; Erikson & Wlezien 2012; Holbrook 1994; Kalla & Broockman 2017; Le Pennec & Pons 2023). But most such inferences arise from research focusing on debates and campaign events that, unlike the 2024 debate, rarely reveal significant new information about candidate quality.¹ Our study examines whether the minimal-effects findings extend to an exceptional case, reexamining existing conclusions and testing robustness against unusual circumstances.

Our contributions are threefold. First, we examine this question using a nationally representative panel survey design with an embedded experiment, which randomly varied *when* respondents were invited to take the survey post-debate, to investigate the debate's effect on vote choice, campaign expectations, and attitudes toward the candidates. While most previous work uses cross-sections or small panels among select demographic subgroups, our large-scale panel design allows us to account for the possibility of differential partisan non-response that plagues cross-sectional event-study analysis, as well as to test for the possibility of effects developing over the course of the days following the debate (perhaps due to post-debate elite discourse, media effects, and conversations with others). Importantly, Gelman et al. (2016) raise the critique that reported change in surveys after a campaign event could be due to systematic differences between two cross-sectional samples rather than actual attitude change, a key methodological limitation from which panel

¹ While so-called “October surprise” events are assumed to carry outsized influence, even seemingly disqualifying revelations may produce modest effects given partisan predispositions (Sides et al. 2019). Unlike these events, which are often historical, ambiguous, and interpreted in partisan ways, the 2024 Biden-Trump debate provided direct contemporary evidence relevant for assessing a candidate's executive fitness.

designs do not suffer in the absence of differential attrition. We discuss sample attrition in full below but note here that panelists may be habituated to responding to a multi-wave survey unlike respondents who drop in and out of a cross-section, thereby reducing the risk of differential non-response.

Second, we estimate that the Biden-Trump debate reduced Biden's expected vote share by 1.1 percentage points, an effect which appeared almost immediately following the debate, was concentrated among pre-campaign Biden supporters, and did not depend on intention to watch the debate. These effects compare to a precisely estimated null effect on vote choice of the Harris-Trump debate (September 10, 2024) calculated using a parallel research design.

Third, we find much larger effects of the Biden-Trump debate on attitudes toward Biden than Trump, including decreased expectations about his ability to win the election and a 5.5-percentage-point increase in views that he was too old, an item not asked in any previous debate panel survey. The latter results represent novel insight into the multidimensional updating that might occur following rare campaign events, and this design enables us to measure the mechanisms of social transmission active post-debate. Taken together, we can put a near upper bound on the immediate effect of debates on presidential election campaigns: A disastrous performance that led to the unprecedented withdrawal of a candidate caused a 1.1-percentage-point decrease in support and moved other attitudes and evaluations significantly more.

Evidence for the Effects of Debates and Campaign Events

Prior work that measures the effects of debates and other events includes event studies, time-series analysis, and meta-analyses that consider the impact of these events on

several outcomes, most commonly voter knowledge and vote choice or electoral outcomes.² While scholars generally find evidence that debates increase knowledge about candidate positions and characteristics (e.g., Benoit et al. 2001; Lanoue 1991; Miller & MacKuen 1979), these findings appear context-dependent and are not consistently durable or robust. The evidence on the effect of debates on vote choice is even more mixed. Over time, political scientists appear to have reached a near consensus on the negligible effects of debates (e.g., Benoit & Hansen 2006; Erikson & Wlezien 2012; Holbrook 1994; Kalla & Broockman 2017; Le Pennec & Pons 2023), although some exceptions exist (e.g., Shaw 1999; Sides & Vavreck 2013). But even if prior work shows that most debates do not matter, some debates may still have effects. If so, when might these substantial effects be present?

The dominant explanation for the influence of debates, and campaign events like conventions, is that they heighten voters' knowledge of issues and candidates as well as increase their awareness of candidates' positions on those issues. For instance, Lanoue (1991) uses a panel with a small sample ($N=285$), interviewing college-aged respondents before the second debate between Bush and Dukakis in October 1988 and twice afterward. He finds that, despite the debate being heralded as a turning point in the campaign, it had no greater effect on vote choice than previous debates (only seven of 98 respondents changed their candidate preference post-debate, and only three switched to the other candidate). At the same time, the debate resulted in short-term increases in viewers' ability to correctly identify each candidate's stance on issues covered in the debate. Benoit et al.

² We focus here on observational research because it exploits naturally delivered stimuli, whereas experimentally manipulated stimuli raise concerns about demand effects and external validity.

(2001) focus on the October 2000 presidential debate between Bush and Gore, also using a small panel ($N=83$), and find that it resulted in respondents learning about the candidates' positions and influenced voters' impressions of them, but that debate viewing did not affect voting intention. These panel studies estimate small and limited effects of debates, primarily on non-vote choice outcomes including the informational effects describe above. Le Pennec and Pons (2023) provide some of the most comprehensive evidence for the minimal-effects consensus, analyzing 56 televised debates across 31 elections from seven countries. Their primary outcome measure is whether debate exposure increases the likelihood of consistent vote intention (i.e., whether debates help crystallize vote choice, not whether they lead to individual-level changes). Additionally, Le Pennec and Pons's use of between-person rolling cross-sections differs from our within-person panel design. We explain in greater detail below the methodological advantage of longitudinal designs for detecting debate effects relative to pooled cross-sections, including compositional shifts (e.g., bias introduced by unobserved stable traits) and differential non-response. We also note that Le Pennec and Pons's analysis focuses on average effects across typical debates that do not typically reveal new information about candidates, as is the norm in the campaign events literature.

One reason that *most* debates may not influence vote choice is that they do not reveal information that consistently moves the electorate toward one candidate or another. Studying the effects of the televised debates between Carter and Ford in 1976, Miller and MacKuen (1979) argue that while the debates increased viewers' awareness of candidate competence and personality attributes, the key effect was to reinforce existing partisan predispositions. Consequently, the debates had little effect on vote choice. In general, the policy information revealed in debates tends to remind voters why they should support the candidate they are already predisposed to support, but new information that might lead to

changes in vote choice is rarely exposed. Subsequent scholarship (e.g., Abramowitz 1978; Benoit & Hansen 2006; Geer 1988; Kalla & Broockman 2017; Wall et al. 1988) broadly supports this idea: Debates at most often persuade voters to support their candidate's positions and thereby reinforce their preferences, but rarely do they lead people to change their choice for president. Holbrook (1994) and Erikson and Wlezien (2012) note that the effect of prevailing national conditions—so-called “fundamentals” like the economy—are much greater than campaign events. But does this minimal-effects finding apply to events like the Biden-Trump debate, which potentially provided new information about a universally desirable candidate characteristic (i.e., valence)—specifically Biden's physical and mental acuity?

A smaller subset of the literature argues that debates can change vote choice under specific conditions. Some of this work focuses on presidential primary elections, showing that in these less salient elections the effects of debates might be larger (e.g., Yawn et al. 1998), consistent with the notion that when baseline levels of voter knowledge are low (and partisan cues are absent), debates may provide new information. Shaw (1999) compares changes in candidate polling around significant campaign events for the presidential elections between 1952 and 1992, including debates, and concludes that these events occasionally have substantial effects. In particular, he finds that the effects of presidential debates have grown larger over time. Sides and Vavreck (2013) likewise argue that the debate effect is not limited to primaries. They analyze the effects of the 2012 debates between Obama and Romney and find effects. They estimate that the first debate of the 2012 cycle, which Romney was widely viewed as having won, led to the erosion of Obama's post-convention lead and left the candidates virtually tied in the polls. Overall, the net effect of the cycle's debates was to help Romney, primarily by converting undecided voters to

support him. Both Shaw and Sides and Vavreck use aggregate trends from cross-sectional polling to estimate shifts in vote choice rather than individual-level panel data.

One reason that prior work may reach such different conclusions about the effects of debates and campaign events is how data are collected. A great deal of the evidence showing that events affect vote choice (e.g., Shaw 1999; Sides & Vavreck 2013; Yawn et al. 1998) relies on the analysis of cross-sectional data, comparing outcomes for different samples of individuals interviewed before and after the event. By contrast, studies using panel data analysis in which the same individuals are interviewed over time tend to produce more modest estimates (e.g., Benoit et al. 2001; Lanoue 1991). Cross-sectional methods may produce inflated estimates if an event like a debate changes who responds to a survey, meaning differences in sample composition may generate apparent effects on average opinion. For example, Gelman et al. (2016) show that, in the weeks following the first 2012 Obama-Romney debate (in which Obama was regarded as having performed poorly), Democrats were much less likely than Republicans to participate in surveys (a pattern that weighting by demographics alone is unlikely to correct), reducing Obama's apparent support. By contrast, they analyze high-frequency panel data and find that campaign events were more strongly correlated with changes in survey participation than with changes in vote intention. Apparently large event effects might instead be caused by these different response patterns changing who takes surveys instead of actual changes in voter intentions. In short, most of the extant work on debates is based on large samples with cross-sectional designs that face compositional concerns, and the few studies with longitudinal designs have very small samples.

Beyond research focused on debates, there is some evidence that other campaign events may matter. Scholars point to notable examples of the negative impact of scandals on

candidate support at the House level (e.g., Basinger 2025; Jacobson & Dimock 1994; Welch & Hibbing 1997). Recent work shows that when seemingly rare or scandalous political events occur during a campaign, they tend to have little effect on voters' attitudes even when survey respondents and common polling measures might indicate otherwise (e.g., Graham & Coppock 2021). Again, most observational evidence about these effects is from cross-sectional survey data, which may be affected by differential patterns of non-response. At the same time, these events may be more like a poor debate performance, in that they convey novel information that is unlikely to have been known ahead of time, which may also explain their negative, if modest, effects.

Returning to the effect of debates, we take this literature as a whole to show that debates rarely change vote choice (though they may have an impact on other information-related outcomes). Instead, most existing work argues that campaign events tend to reinforce partisan predispositions rather than produce shifts in vote choice, perhaps because campaign events usually do not provide new information (unlike scandals, for example). Even when scholars do identify a shift in vote choice following a debate, it mostly appears only in aggregate polling trends, which raises concerns that these estimated effects are due to changing sample composition, which panel estimates can circumvent.

In light of these concerns, we examine the June 2024 Biden-Trump debate as a rare instance in which a campaign event plausibly revealed new and important information about a widely valued candidate trait: fitness to hold office. Using panel data, we contribute evidence on the impact of campaign events by assessing whether minimal-effects arguments hold when a debate makes widely known novel information about candidate valence.

We specifically investigate three potential effects using our panel dataset. First, we test whether the debate moved vote choice. Although previous debates yield mostly

minimal effects, the Biden-Trump debate was not typical and so an effect here would be consistent with minimal effects in most debates. To benchmark the effect of this specific debate, we use the same research design to estimate the effect of the Harris-Trump debate later in the campaign.

Second, we estimate the effect of the debate on a much larger range of non-vote-choice outcomes than is generally considered in prior work. Although some prior work has examined the informational effects of debates, it has generally not systematically examined how debates might alter voters' views about candidate quality or motivate them to engage politically. We introduce novel outcomes investigating whether voters want to replace the candidates, whether they view the candidates as qualified for the position, and how engaged they are with politics. The present study therefore examines previously unmeasured pathways for the influence of campaign events.

Finally, we consider whether we can identify subgroups for which the debate had larger effects (e.g., non-viewers, partisans, or those interviewed later following the debate). This follows from previous work that shows effects tend to be concentrated among partisans, reinforcing their partisanship, and among those who report watching the debate (i.e., direct exposure). Some work has also argued that some effects of debates might operate through media coverage over time, which we can test by comparing effects immediately following the debate with effects two to three days later (Steeper 1978). Other research shows that media framing and social media activity can lead to quicker effects: Fridkin et al. (2007) highlight the effect of the media's "instant analysis" of debate performances on candidate evaluations while Asbury-Kimmel et al. (2021) show that exposure to contemporaneous social media commentary may immediately influence debate perceptions and candidate evaluations.

Data and Methods

Our core research goal is to estimate the effect of the debate between Donald Trump and Joe Biden on changes in attitudes, including vote choice. To do so, we use panel data to compare individuals' attitudes in the week prior to the debate to attitudes in the week afterward. Data were collected as part of the [removed]. This study, administered by YouGov, included waves of around 6,000 respondents who were contacted at monthly intervals for the duration of 2024 (more information is available in the appendix). In addition to their usual monthly responses, respondents participated in special survey waves fielded the week before and the week after each of the two presidential debates in 2024. This allows us to estimate within-subject change (and simultaneously account for changes to sample composition with individual-level fixed effects) from before to after each debate, and to compare changes among different subsets of respondents (e.g., pre-debate intended Biden voters to non-intended Biden voters). Our primary sample consists of 5,400 respondents who took the pre-debate survey before the Biden-Trump debate, of whom approximately 4,630 (86%) took the post-debate wave. Our panel data allows us to verify that attrition was not differential based on pre-campaign vote choice, which we discuss below. It also enables us to perform extensive robustness checks, including imputation of future-wave vote choice among those who attrited in the immediate post-debate wave.

Importantly, we estimate change in opinions from before to after the debate. For our analysis, the implied counterfactual is what would have happened in the absence of the debate. This is different from a counterfactual in which Biden performed well or alleviated age-related concerns. Rather, our estimate is equivalent to asking what opinion would have been had the debate not occurred and people had not observed the signals of Biden's physical and mental acuity between survey waves.

We estimate a within-respondent model that includes respondent fixed effects to absorb pre-treatment respondent values:

$$Y_{it} = \beta_1 \cdot postdebate_t + \alpha_i + \varepsilon_{it}.$$

Y_{it} is each outcome of interest for person i and time t , α_i is a respondent-specific fixed effect, and ε_{it} is an error term. $Postdebate_t = 1$ for all individuals in the second (post-debate) survey wave. Our coefficient, β_1 , therefore captures average change between the pre- and post-debate surveys among respondents answering both waves. The results we uncover are therefore an estimate of the sample average treatment effect. The sample average treatment effect might not reflect the population average treatment effect if selection into our sample is not independent of treatment effects. This could be the case if the sample is not representative of the broader population or because of attrition correlated with treatment effects. We use robust standard errors clustered at the respondent level to account for heteroskedasticity. Lastly, we note that all results are weighted to reflect national demographic characteristics unless otherwise noted. Our key outcome variable is vote choice, and we describe all outcome variables in detail in the results section (with the full text of all questions in the appendix).

To assess whether there are heterogeneous effects by prior candidate support, we estimate outcomes by pre-campaign vote choice.³ We compare effects among respondents

³ Of the 4,630 responses included in our sample (i.e., respondents who completed both the pre- and post-debate survey waves), roughly 42% intended to vote for Biden, 40% intended to vote for Trump, and 18% were undecided or intended to vote for someone else in December 2023 (unweighted).

who reported they intended to vote for Biden, Trump, and all other options (e.g., not vote, unsure, or support a third-party candidate) as measured in the December 2023 survey wave.

We also examine how the debate influenced attitudes by trying to differentiate how and when information reaches voters. First, to assess whether personally viewing the debate is necessary to explain any effects, we define debate viewers as respondents who reported prior to the debate that they were very likely or likely to watch it. We use pre-debate intentions to limit concerns about systematic measurement error because debate performance may affect who reported viewing it (e.g., Democrats who observe their candidate performed poorly may report they did not watch or Republicans who heard that Biden was performing poorly might report they did watch).

Second, we embedded an experiment in our panel recontact design to allow us to estimate how effects changed over time. Respondents were randomly assigned to one of five different times to be invited to take the survey in the post-debate wave. One group was invited immediately following the debate (“Thursday PM”), one was invited the following morning (“Friday AM”), one was invited that afternoon (“Friday PM”), one was invited the morning of the third day (“Saturday AM”), and the last was invited the morning of the fourth day (“Sunday AM”). This design allows us to compare subjects who are otherwise identical in expectation to see if debate effects are influenced by the length of time after the debate someone is interviewed.⁴ Later respondents may be more affected by how the debate is reported by others, which could potentially increase the effects by spreading the

⁴ We note that we randomize when respondents were invited to take the second survey but not when they took the survey (though it must be after they were invited). We discuss the mapping between our treatment and actual survey timing below.

information more widely or interpreting its importance (e.g., Chong & Druckman 2007; McCombs & Shaw 1972), although over time co-partisan media and elites may reinterpret negative events or “slant” the news in their favor (Mullainathan & Shleifer 2005).

This full design was replicated with a different group of respondents for the September debate between Kamala Harris and Donald Trump, after Harris replaced Biden as the Democratic nominee. This allows us to compare the effects of a debate with larger-than-normal apparent consequences to a more typical debate using consistent methodologies.

Results

In this section, we present a series of regression models that estimate the effect of the June debate on voting intention and attitudes toward the candidates. We estimate that the Biden-Trump debate had detectable and substantively important effects on support for Joe Biden. Across our models, there is a baseline 1.1-percentage-point decrease in support for Biden following the debate with the largest effects observed among early Biden supporters. Additionally, we observe larger effects on changes in secondary attitudes such as favorability toward Biden. We show that the debate’s effects are almost immediate and do not depend on viewing the debate, an account that is consistent with very rapid information transmission and dense information networks. Comparing these results to identical models estimated following the Harris-Trump debate, we find that the Biden-Trump debate had much larger effects than a more typical debate.

Table 1. Estimated change in support for Biden pre- to post-debate. Baseline groups are non-intended-watchers, pre-campaign Biden voters, and recontact invitations sent immediately following the debate to take the post-debate survey. The outcome variable is Biden support, with support in each wave coded as 1 if a respondent said they planned to vote for Joe Biden in November and 0 otherwise.

	Baseline	By Viewership Intention	By Dec Vote	By Recontact Timing
Post-Debate (baseline)	-0.011*** (0.003)	-0.015*** (0.004)	-0.032*** (0.008)	-0.006 (0.004)
Post-Debate X Intended Watcher		0.006 (0.006)		
Post-Debate X Dec Trump Voters			0.032*** (0.008)	
Post-Debate X Dec Other Voters			0.027*** (0.010)	
Post-Debate X Fri AM				-0.000 (0.007)
Post-Debate X Fri PM				-0.006 (0.009)
Post-Debate X Sat AM				-0.021** (0.009)
Post-Debate X Sun AM				-0.000 (0.007)
Constant	0.296*** (0.001)	0.296*** (0.001)	0.296*** (0.001)	0.296*** (0.001)
Adj R-squared	0.005	0.005	0.012	0.007
N	4630	4630	4630	4630

Note: Individual-level fixed effects. Robust standard errors clustered at the respondent level in parentheses. N refers to the total number of respondents taking both survey waves with valid responses to the outcome variable; analysis is restricted to this sample. In Appendix Table A1, we code the dependent variable such that -1 equals vote choice for Trump, 1 equals vote choice for Biden, and 0 equals every other response (i.e., other candidate, would not vote, and not sure). We find similar results to our binary models.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

In Table 1, we estimate changes in panel respondents' attitudes from before to after the debate between Joe Biden and Donald Trump on June 27, 2024, where the outcome variable is a binary measure of Biden support. The first row in column 1 shows a 1.1-percentage-point decrease in average support for Biden between the pre- and post-debate

periods ($p < 0.01$).⁵ The remaining cells in row 1 represent baseline groups: non-intended-watchers (column 2), pre-campaign (December 2023) Biden supporters (column 3), and recontact invitations sent Thursday evening (column 4). Interaction coefficients in subsequent rows are thus interpreted relative to these baseline values and estimated effects for subgroups are calculated by adding them to the baseline effect (e.g., in column (2), the effect for debate watchers is $-0.015 + 0.006 = -0.009$).

The estimates in column 2 show no evidence that those who reported they intended to watch the debate decreased their support for Biden more than non-intended-watchers. The interaction with reported intention to watch the debate is positive and small (0.006) relative to the baseline and not statistically significant. The linear combination of the baseline and interaction terms yields a marginally significant estimated marginal effect ($p < 0.10$).

The estimates in column 3 indicate the effects differed substantially by prior candidate support, with the largest declines observed among December Biden supporters. Pre-campaign Biden supporters decreased their support by 3 percentage points after the debate while pre-campaign Trump supporters and undecided voters had no movement from their pre-debate views.⁶

⁵ Because we include respondent-level fixed effects that absorb time-invariant characteristics, the coefficient for the post-debate indicator can be interpreted as average within-person change for those who answered both waves of the survey. So, while we predict support, the coefficient identifies change.

⁶ For prior Trump voters, the total estimated effect is $-0.032 + 0.032 = 0$, n.s. This is in part because they already supported Biden at very low levels. For those who supported neither

We note modest attrition (770 respondents) between pre-debate ($N=5400$ throughout the manuscript for the Biden-Trump debate) and post-debate ($N=4630$ for vote choice, above) survey waves. Importantly, we do not observe differential attrition by pre-campaign (December 2023) vote choice: roughly 40% intended to vote for Biden, 39% intended to vote for Trump, and 20% reported otherwise. (See Appendix Tables A2 and A3 for vote choice transition matrices, excluding and including attrition, respectively.) To further assess the effect of sample attrition on our estimates, in Appendix Table A4, we impute each respondent's vote choice for the portion of our sample that did not respond to the immediate post-debate wave using the next wave of our survey (at which point Harris had replaced Biden as the presumptive Democratic nominee). This addresses a potential threat to inference if, for example, respondents opted not to respond to the survey after the debate instead of reporting a change in vote choice, a critique raised by Gelman et al. (2016). In this model, we estimate a post-debate coefficient of -0.006 ($p < 0.05$), implying that those who did not respond to the second wave were no more or less likely to support the Democratic candidate. In Appendix Tables A5 and A6, we use additional survey waves and show that those attriting and not attriting, respectively, show largely similar post-debate trends in vote choice.

Finally, turning to the experiment that randomized when respondents were recontacted post-debate, the Thursday evening recontact group showed a modest decline in support for Biden (-0.006 , n.s.) while for some later groups movement was larger. There is no consistent time trend in the later periods, however, with the most negative effects

Trump nor Biden in December, the estimated decline in Biden support is also small: $-0.032 + 0.027 = -0.005$, which is also not statistically significant.

estimated for the invitations sent two days after the debate ($-0.006 + -0.021 = -0.027$, $p < 0.05$) and less negative effects for Friday or Sunday invitations. In short, there is no consistent pattern in the over-time effect of when respondents were interviewed post-debate.

Our surveys were fielded immediately before and immediately following the debate. By assumption, we attribute any changes in opinion to the direct and indirect effects of the debate. However, to put the size of these effects into context, we compare this estimate to an observed time series of support for Biden in the larger election survey. Appendix Figure A1 presents a time series of the proportion of respondents who support Biden by week in our panel dataset, separately for those who said they intended to watch the debate or not. We show that compared to regular campaign movement leading up to the debate, the drop occurring in the single week following the debate is relatively steep, pointing to a meaningful shift in support for Biden.

Table 2A. Effect of debate on commonly measured attitudes toward Biden and Trump.

	Nov 2024 voting likelihood (1- 5, += more likely)	Joe Biden favorability (1- 5, += more favorable)	Donald Trump favorability (1- 5, += more favorable)	National winner prediction (1- 5, += Trump)
Post-Debate	-0.006 (0.006)	-0.079*** (0.012)	0.012 (0.011)	0.240*** (0.011)
Adj R-squared	0.000	0.010	0.000	0.089
N	4646	4557	4576	4646
Mean	4.65	2.61	2.56	3.09

Note: Turnout: DK = 1; Fav + Prediction: DK = 3. Individual-level fixed effects. Robust standard errors clustered at the respondent level in parentheses. N refers to the total number of respondents taking both survey waves with valid responses to the outcome variable; analysis is restricted to this sample.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Moving to outcomes other than vote choice—including several measures, which to the best of our knowledge, are used here for the first time—Tables 2A through 2C report

the effect of the debate on average attitudes toward Biden and Trump as well as political engagement. (We present subgroup analysis by prior vote choice and debate viewership below.) Before the debate, the mean likelihood of voting in the November election (in our sample) was 4.62 (on a 1-to-5 scale, where higher values correspond to greater likelihood). The first column in Table 2A shows no significant change in turnout likelihood. However, we estimate a statistically significant decline in Joe Biden’s favorability following the debate (-0.079, $p < 0.01$) in column 2. Notably, we also see a large increase in respondents predicting Trump will win the election in November in column 4. The change of 0.240 ($p < 0.01$) is significantly larger than changes in candidate evaluation (on a 1-to-5 scale, where higher values indicate predicting a Trump victory). In column 3, we do not detect statistically significant movement in Donald Trump’s favorability following the debate.

Table 2B. Effect of debate on attitudes toward Biden and Trump as presidential candidates.

	Biden too old (0-1)	Trump too old (0-1)	Biden replaced as nominee (0-1)	Trump replaced as nominee (0-1)
Post-Debate	0.049*** (0.004)	0.018*** (0.004)	0.089*** (0.007)	-0.003 (0.005)
Adj R-squared	0.031	0.005	0.039	0.000
N	4185	4135	3660	4168
Mean	0.69	0.40	0.49	0.52

Note: DK = 0.5. Individual-level fixed effects. Robust standard errors clustered at the respondent level in parentheses. N refers to the total number of respondents taking both survey waves with valid responses to the outcome variable; analysis is restricted to this sample.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Estimates of the effect of the debate on candidate assessments are shown in Table 2B and reveal significant changes in how respondents viewed both candidates. Before the debate, 67 and 41 percent of respondents said that Biden and Trump, respectively, were too old to be president. Following the debate, we see 4.9- and 1.8-percentage-point increases in those assessing Biden and Trump as too old (on a binary scale), respectively. Respondents

are also more likely to indicate that Biden should be replaced as the Democratic Party's nominee after the debate (0.089, $p < 0.01$) than they were before the debate. The coefficient for respondents report the same for Trump following the debate is small (-0.003) and not statistically significant.

Table 2C. Effect of debate on political engagement.

	Initiated a conversation about politics (in last 48 hours) (0-1)	Donated to a candidate (in last 48 hours) (0-1)	Looked up information about a candidate (in last 48 hours) (0-1)	Posted on social media about a candidate (in last 48 hours) (0-1)
Post-Debate	0.140*** (0.008)	0.005 (0.004)	0.006 (0.007)	0.028*** (0.005)
Adj R-squared	0.062	0.000	0.000	0.006
N	4646	4646	4646	4646
Mean	0.37	0.07	0.26	0.15

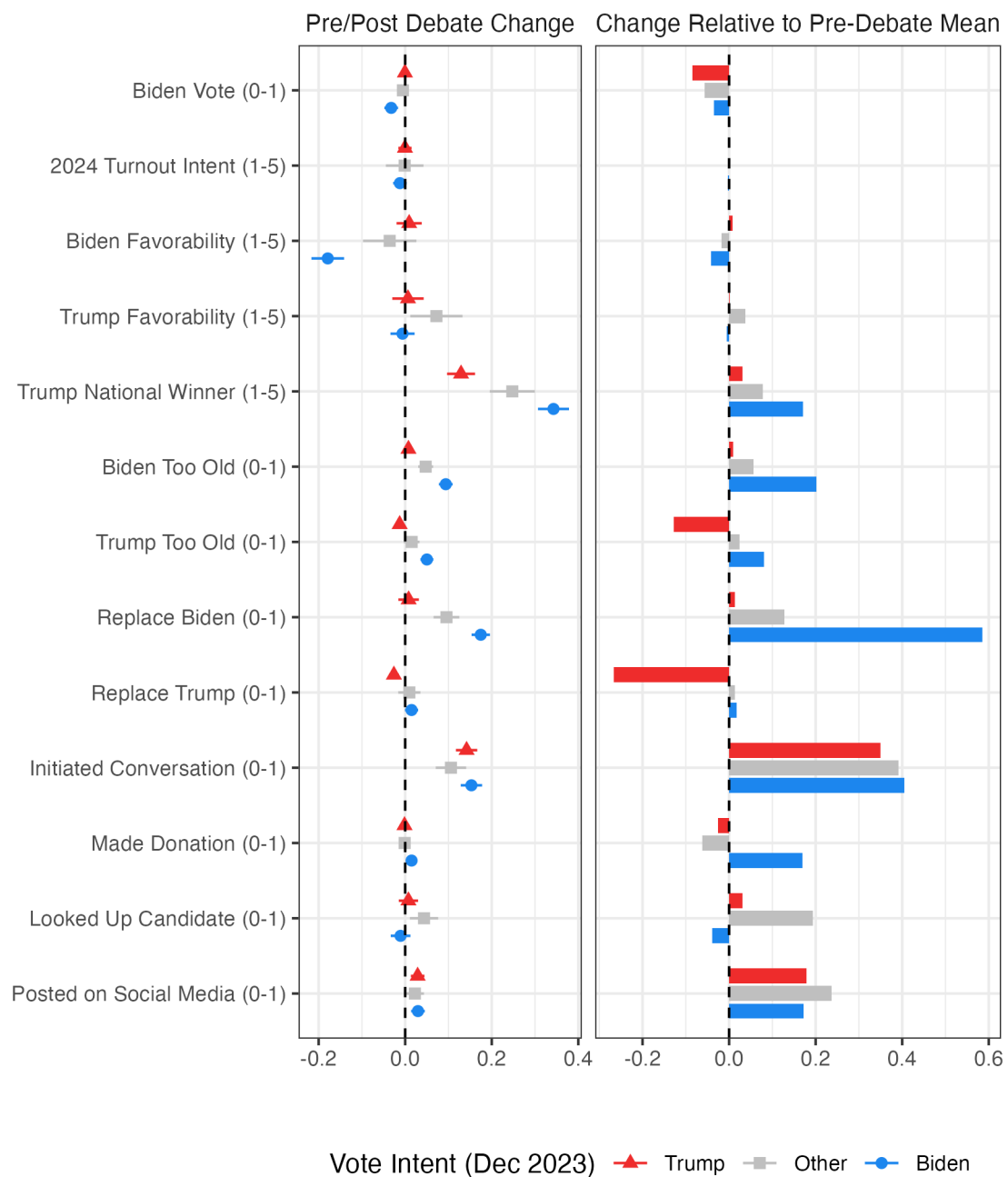
Note: DK = 0. Individual-level fixed effects. Robust standard errors clustered at the respondent level in parentheses. N refers to the total number of respondents taking both survey waves with valid responses to the outcome variable; analysis is restricted to this sample.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Finally, we report estimates of the effect of the debate on changes in reported political behaviors and actions in Table 2C. We find a dramatic increase in political engagement levels using these novel outcome measures. The largest change we estimate is a 14-percentage-point increase in respondents reporting they had initiated a conversation about politics in the last 48 hours ($p < 0.01$), which points to heightened political discussion following the high-profile debate. In line with this finding, we also detect a more modest but statistically significant (2.8-percentage-point) increase in respondents saying they have posted about politics on social media following the debate. However, respondents do not appear significantly more likely to donate to a candidate or seek information about a candidate following the debate. Accordingly, we argue that the primary behavioral response to the debate was not information seeking but rather sharing and discussing politics with

others. These findings emphasize the relevance of socially oriented political behavior in response to campaign events, which, to our knowledge, few studies attempt to directly measure.

Figure 1. Estimated change in attitudes from before to after the debate (left) and change relative to pre-debate mean (right) by pre-campaign vote choice. Biden supporters are shown in blue, Trump in red, and other in purple. Lines are 95% confidence intervals of estimates.



Note: Lines in the coefficient plot (left panel) represent 95% confidence intervals. For each outcome, we estimate a pooled regression with the indicator for post-debate interacted with

each pre-campaign vote intention category. Aside from Biden vote (which is shown in Table 1), the full regression outputs for all outcome variables are reported in Appendix Tables B1–B3.

We disaggregate these results by prior vote intention in analysis summarized in Figure 1. The left facet of the figure presents a coefficient plot of changes in the same 12 outcome variables from pre- to post-debate by pre-campaign (December 2023) vote choice (in addition to our main Biden support outcome at the top, reported above in Table 1). To provide a sense of the magnitude of changes, the right facet of the figure shows the change coefficient divided by each subgroup’s pre-debate mean for each outcome. These estimates represent the proportional change in the outcome relative to its pre-debate level. Biden supporters show the greatest movement for nearly every outcome, meaning that the changes we detect are not driven mainly by undecided voters or Trump voters but by people who prior to the debate intended to vote for Joe Biden at high rates (89% of pre-campaign Biden voters, 1.5% of pre-campaign Trump voters, and 6.1% of other voters supported Biden pre-debate).

Consistent with our earlier findings, we see larger changes in predictions of the national winner. The plot shows positive movement for all three groups, with indistinguishably larger effects for Biden and “other” voters. This general pattern of Biden supporters moving the most is also reflected in changes in those wanting to replace Biden as the nominee, followed by those in the “other” category (these differences are statistically distinguishable). By contrast, no group displays significant change in support for replacing Trump as the nominee. Biden supporters also show the largest drop in favorability toward Biden (possibly because they started at the highest level before the debate). Trump, however, did not experience the same decline in favorability or desire by any subgroup to see him replaced as the Republican nominee. Overall, the effect of the debate on

assessments of candidate traits was limited to attitudes toward Joe Biden. We include the corresponding regression tables in the appendix.

Information Transmission: Did Intention to Watch the Debate Matter?

Our design has two features that allow us to measure how information about the debate reaches the public. We examine whether intending to personally watch the debate has a distinct effect compared to intending not to watch the debate (i.e., whether there is a direct effect distinct from indirect effects) as well as whether larger differences in attitudes emerge in the days following the debate (i.e., whether, through media, interpersonal communications, or seeing clips of the debate, for example, there is a developing effect). In Appendix Figure C1, we show the effect of the debate is similar among those intending to watch and those for whom exposure was indirect, suggesting information about the debate diffuses quickly following the conclusion of the debate, at least within our sample. Appendix Figure D1 presents estimated effects of random recontact timing on changes in our 12 outcome measures. We find relatively few substantively important differential effects, regardless of when respondents were invited to take the survey. Additionally, there are no clear patterns of movement in these outcomes.

Parallel Analysis of a “Typical” Debate: The Harris-Trump Debate

To put our findings from the Biden-Trump debate in context, we replicate our key models from the June 2024 Biden-Trump debate for the September 2024 Harris-Trump debate. This allows us to test the effect of a debate that was seen as relatively unremarkable.

Table 3. Support for Harris pre/post-debate. Baseline groups are non-intended-watchers, Democrats, and Tuesday PM recontacts.

	Baseline	By Viewership Intention	By Dec Vote	By Recontact Timing
Post-Debate (baseline)	0.000 (0.002)	0.000 (0.005)	-0.000 (0.004)	0.003 (0.003)
Post-Debate X Intended Watcher		0.000 (0.006)		
Post-Debate X Dec Trump Voters			0.001 (0.004)	
Post-Debate X Dec Other Voters			-0.001 (0.010)	
Post-Debate X Wed AM				-0.006 (0.005)
Post-Debate X Wed PM				-0.002 (0.004)
Post-Debate X Thu AM				-0.011 (0.008)
Post-Debate X Fri AM				0.008 (0.007)
Constant	0.393*** (0.001)	0.393*** (0.001)	0.393*** (0.001)	0.393*** (0.001)
Adj R-squared	-0.000	-0.000	-0.000	0.002
N	4663	4663	4663	4663

Note: Individual-level fixed effects. Robust standard errors clustered at the respondent level in parentheses. N refers to the total number of respondents taking both survey waves with valid responses to the outcome variable; analysis is restricted to this sample.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

In Table 3, we replicate the models from Table 1 but for the second debate (pre-debate $N=5514$). Unlike the significant decline in support for Biden in June, we find precisely estimated null effects following this debate. There is no effect on Harris's support across any subgroup. In some ways, this null effect adds weight to the estimate effects for the Biden-Trump debate, as the same identification strategy recovers a lack of effects where we should not expect to see them. In Appendix Table E1, we closely replicate the models of Table 2A for the Harris debate. We estimate a significant increase in Harris's favorability (0.052, $p < 0.05$) and decrease in Trump's (-0.019, $p < 0.01$), but note these effects are smaller than those caused by the June debate.

Discussion

Debates, like most other campaign events, rarely have large or long-lasting effects on vote choice. In this paper, however, we exploit the essentially unique June 27, 2024, debate between Joe Biden and Donald Trump as a natural experiment that revealed information about Joe Biden's physical and mental acuity. We estimate a statistically significant 1.1-percentage-point decrease in support for Joe Biden following the debate. We also show significant changes in a variety of political attitudes and behaviors following the debate, most notably large changes in assessments of Joe Biden's candidate quality and immediate effects on political behavior. We replicate our research design for the later debate between Kamala Harris and Donald Trump, which was viewed as relatively unremarkable and find a precisely estimated null effect on vote choice and smaller effects on our other outcomes.

Our findings align with the view many commentators hold that the Biden-Trump debate was disastrous for Biden, whose performance exacerbated latent concerns about his old age (Goldmacher & Swan 2024). Though the effect of the debate on elite views was clear almost immediately afterward, our study offers the most comprehensive look at the effect of the event on mass public opinion. We show that the effects of the debate were widespread and developed very quickly, rather than following viewership or post-debate media coverage. We argue the debate was unusually salient and had large effects on views of Biden, an exception to an extensive literature that emphasizes the negligible impact of campaign events on vote choice (e.g., Benoit & Hansen 2006; Erikson & Wlezien 2012; Holbrook 1994; Kalla & Broockman 2017; Le Pennec & Pons 2023).

Gelman et al. (2016) show that apparent large shifts in cross-sectional data may be artifacts of shifting sample composition more so than real change. Our panel design allows us to reduce this concern by design since any changes to the sample composition between

waves is absorbed by individual-level fixed effects, and the modest attrition rate along with our analysis filling in future values for those missing in the post-debate wave suggests differential attrition does not bias our estimates. However, we note that even in panel data, non-response can still bias treatment effect estimates (although we show this is unlikely the case in our sample). Additionally, the sample average treatment effect might not be a good estimate of the population average treatment effect if the respondents who participate in panels are different than the public.

Our contribution is to use a large-scale panel design, with an embedded experiment, to isolate respondents' vote choice, attitudes, and behaviors leading up to and following the debate. Past work has found that an event like a debate may change who immediately responds to a survey, and so differences in sample composition may lead to abnormal response patterns, which may ultimately yield spurious effects on public opinion (Gelman et al. 2016). Similarly, cross-sectional studies might fail to capture the impact of elite and media discourse that builds in the days following a newsworthy campaign event. Our panel design allows us to avoid many of these concerns.

We do not think our finding is inconsistent with past research showing other debates have negligible effects. Rather, our finding of a 1.1-percentage-point shift in vote choice represents a rare exception. This debate was unusual in both its salience and the new information voters learned from it—4.9 percent of our sample updated their views to think Joe Biden was too old to be president following the debate, representing a large change in views over candidate quality. Additionally, we report a 14-percentage-point increase in discussing politics following the debate, pointing to an understudied social dimension to politics. Future work might consider more systematic measurement of political engagement as a relational process, distinct from the large literature underscoring informational and

participatory outcomes. Indeed, other “normal” debates that do not reveal substantial and potentially new information about one candidate are very unlikely to have similarly large effects, as we show with the Harris-Trump debate later in 2024. Although debates may not typically matter, we identify when they do: when revealing significant novel information about candidate fitness. In many ways, our 1.1-percentage-point effect represents the upper end of what might be expected from a debate in the modern polarized era where candidate positions are sharply differentiated by party and are already well-known to many voters.

It is also worth emphasizing that debates are not a single treatment but rather a type of treatment composed of many bundled effects. Media effects, campaign effects, learning about the candidate, and others are included in this bundle, and each depends on the specific circumstances of the debate. Scholars will need to continue to look at these debates to be able to develop a systematic understanding of when debates will influence voters and what attitudes and behaviors they will influence.

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Appendix

Survey details

Our data come from the [removed], conducted by YouGov. This survey includes a baseline sample of approximately 130,000 respondents in the United States recruited from YouGov's online survey panel as well as weekly panels of around 6,000 respondents contacted every 4 weeks on a rotating basis. YouGov's panel is an opt-in panel where respondents are invited to take surveys in return for "points" they can redeem for rewards. Samples are selected to be demographically diverse so that weighting can be performed to match targets, but in the case of this sample it is not designed to match national targets without weighting. Additionally, to ensure low-attrition respondents in the [removed] panel tend to have longer histories with YouGov, which reduces the likelihood they will drop out of the sample.

The [removed] panel provides a unique opportunity to study public opinion as it is one of the largest panels available with both high frequency re-contacts and a large time span covered by the panel. Data are weighted to reflect national demographic characteristics and all results presented are with weights unless specified. Baseline information for this group was collected in December of 2023 and early January of 2024, with thirteen follow-up surveys throughout 2024.

The sample is thus reflective of the American public on observable demographic grounds, but not necessarily on unobservables. For instance, our sample is likely to be more politically engaged than the general public as they are willing to take frequent surveys. This limitation is common to many surveys that rely on opt-in online samples or other sampling procedures with low uptake rates.

Survey question text

How likely are you to vote in the presidential election in November 2024? [Definitely will vote/Probably will vote/Even chance/Probably won't vote/Definitely won't vote]

Do you have a favorable or an unfavorable opinion of [Joe Biden]? [Very favorable/Somewhat favorable/Somewhat unfavorable/Very unfavorable/Don't know]

Do you have a favorable or an unfavorable opinion of [Donald Trump]? [Very favorable/Somewhat favorable/Somewhat unfavorable/Very unfavorable/Don't know]

If the candidates for President in November are [Joe Biden] and Donald Trump, who do you think is most likely to be elected? [Definitely [Biden]/Probably [Biden]/Equally likely [Biden] or Trump/Probably Trump/Definitely Trump]

Is Biden too old to be President? [Yes/No/Not sure]

Is Trump too old to be President? [Yes/No/Not sure]

Do you think Joe Biden should be replaced as the Democratic Party's candidate before the election in November? [Yes/No/Not sure]

Do you think Donald Trump should be replaced as the Republican Party's candidate before the election in November? [Yes/No/Not sure]

*In the last 48 hours, have you done any of the following? Select all that apply.
[Selected/Not selected]*

Initiated a conversation with someone you know about politics (in-person or by phone, text, or email)

Donated to a candidate

Looked up information about a candidate

Posted on social media about a candidate

Table A1. Estimated change in support for Biden pre- to post-debate. Baseline groups are non-intended-watchers, pre-campaign Biden voters, and invitations sent immediately following the debate to take the post-debate survey. The outcome variable is candidate support, with support in each wave coded as -1 if a respondent said they planned to vote for Donald Trump in November, 1 if Joe Biden, and 0 otherwise.

	Baseline	By Viewership Intention	By Dec Vote	By Recontact Timing
Post-Debate (baseline)	-0.014*** (0.005)	-0.015*** (0.005)	-0.030*** (0.011)	-0.009 (0.006)
Post-Debate X Debate Watcher		0.001 (0.009)		
Post-Debate X Trump Voters			0.024** (0.012)	
Post-Debate X Other Voters			0.019 (0.015)	
Post-Debate X Fri AM				0.003 (0.009)
Post-Debate X Fri PM				-0.002 (0.016)
Post-Debate X Sat AM				-0.020 (0.014)
Post-Debate X Sun AM				-0.003 (0.011)
Constant	-0.110*** (0.002)	-0.110*** (0.002)	-0.110*** (0.002)	-0.110*** (0.002)
Adj R-squared	0.004	0.003	0.005	0.004
N	4630	4630	4630	4630

Note: Individual-level fixed effects. Robust standard errors clustered at the respondent level in parentheses. N refers to the total number of respondents taking both survey waves with valid responses to the outcome variable; analysis is restricted to this sample.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A2. Transition matrix excluding attrition.

Pre-debate vote choice	Post-debate vote choice		
	Not Biden	Biden	Total
Not Biden	2689 98.68%	36 1.32%	2725 100.00%
Biden	116 6.09%	1789 93.91%	1905 100.00%
Total	2805 60.58%	1825 39.42%	4630 100.00%

Note: First row has frequencies and second row has row percentages.

Table A3. Transition matrix including attrition.

Pre-debate vote choice	Post-debate vote choice			
	Not Biden	Biden	Attrited	Total
Not Biden	2689	36	476	3201
	84.00%	1.12%	14.87%	100.00%
Biden	116	1789	294	2199
	5.28%	81.36%	13.37%	100.00%
Total	2805	1825	770	5400
	51.94%	33.80%	14.26%	100.00%

Note: First row has frequencies and second row has row percentages.

Table A4. Change in support for Biden pre- to post-debate. Respondents who did not take the post-debate survey are coded based on their next available Biden/Harris-Trump vote choice. Baseline groups are non-intended-watchers, pre-campaign Biden voters, and invitations sent immediately following the debate to take the post-debate survey. The outcome variable is change in Biden support, with support in each wave coded as 1 if a respondent said they planned to vote for Biden/Harris in November and 0 otherwise.

	Baseline	By Viewership Intention	By Dec Vote	By Recontact Timing
Post-Debate (baseline)	-0.006** (0.003)	-0.006 (0.004)	-0.023*** (0.008)	-0.003 (0.004)
Post-Debate X Intended Watcher		-0.001 (0.006)		
Post-Debate X Dec Trump Voters			0.023*** (0.008)	
Post-Debate X Dec Other Voters			0.026** (0.011)	
Post-Debate X Fri AM				0.000 (0.007)
Post-Debate X Fri PM				0.000 (0.009)
Post-Debate X Sat AM				-0.020** (0.010)
Post-Debate X Sun AM				0.003 (0.009)
Constant	0.300*** (0.002)	0.300*** (0.002)	0.300*** (0.002)	0.300*** (0.002)
Adj R-squared	0.001	0.001	0.005	0.003
N	5234	5234	5234	5234

Note: Robust standard errors clustered at the respondent level in parentheses. N refers to the total number of respondents taking both survey waves with valid responses to the outcome variable; analysis is restricted to this sample.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A5. Support for Biden pre- to post-debate, only among respondents who did not take the post-debate survey, using later Harris support as a proxy for post-debate Biden support. Baseline groups are non-intended-watchers, pre-campaign Biden voters, and post-debate survey invitations sent immediately following the debate. Outcome variable is change in Biden/Harris support, with post-debate support measured one or two months post-debate (whichever we first have data for), with support in each wave coded as 1 if a respondent said they planned to vote for Biden/Harris in November and 0 otherwise.

	Baseline	By Viewership Intention	By Dec Vote	By Recontact Timing
Post-Debate (baseline)	0.033** (0.015)	0.060** (0.025)	0.039 (0.025)	0.020 (0.025)
Post-Debate X Intended Watcher		-0.052* (0.031)		
Post-Debate X Dec Trump Voters			-0.038 (0.026)	
Post-Debate X Dec Other Voters			0.046 (0.061)	
Post-Debate X Fri AM				0.009 (0.030)
Post-Debate X Fri PM				0.055 (0.036)
Post-Debate X Sat AM				-0.010 (0.045)
Post-Debate X Sun AM				0.016 (0.051)
Constant	0.321*** (0.006)	0.321*** (0.006)	0.321*** (0.006)	0.321*** (0.006)
Adj R-squared	0.013	0.021	0.025	0.016
N	770	770	770	770

Note: Robust standard errors clustered at the respondent level in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Comparing the results in Tables A2 (those who skipped the post-debate wave) and A3 (those who did not) when we use later Harris support instead of post-debate Biden support (which is available only for this who did not skip the post-debate wave), we find that the change following the debate between respondents who skipped the post-debate wave and those who did not is relatively similar, although a larger proportion of those skipping the post-debate wave were Biden voters pre-debate and their increase in Biden to Harris support is larger (for both groups, Harris does better than Biden did pre-debate). This

suggests the raw estimate in Table 1 might be a small overestimate of the decline in Biden's support, in that the difference between 0.033 and 0.028 is 0.005, implying that those who did not take the first post-debate wave were up to 0.005 units more supportive of Harris (as a proxy for Biden). If we use this difference to calculate an adjusted Table 1 estimate for all respondents (including those who did not take the first post-debate wave) we arrive at an estimate of $(-0.011 * 5400 + ((-0.011 + 0.005) * 770)) / (5400 + 770) = -0.010$, or about a 9% smaller than the estimate for those who took both waves alone. This estimate rests on the assumption that the magnitude of the difference in Harris support post-Debate between those who took the post-Debate wave and those who did not (0.005) can be used to adjust upward the estimated treatment effect on Biden support among those who took the post-debate wave to calculate a corresponding treatment effect for those who skipped the first post-debate wave (i.e., $-0.011 + 0.005 = -0.006$). We then calculate a total sample treatment effect by averaging the estimate for the post-debate survey wave group (-0.011 for 5400 respondents, the Table 1 estimate) and the imputed estimate for the group that skipped the first post-debate wave (-0.006 for 770 respondents).

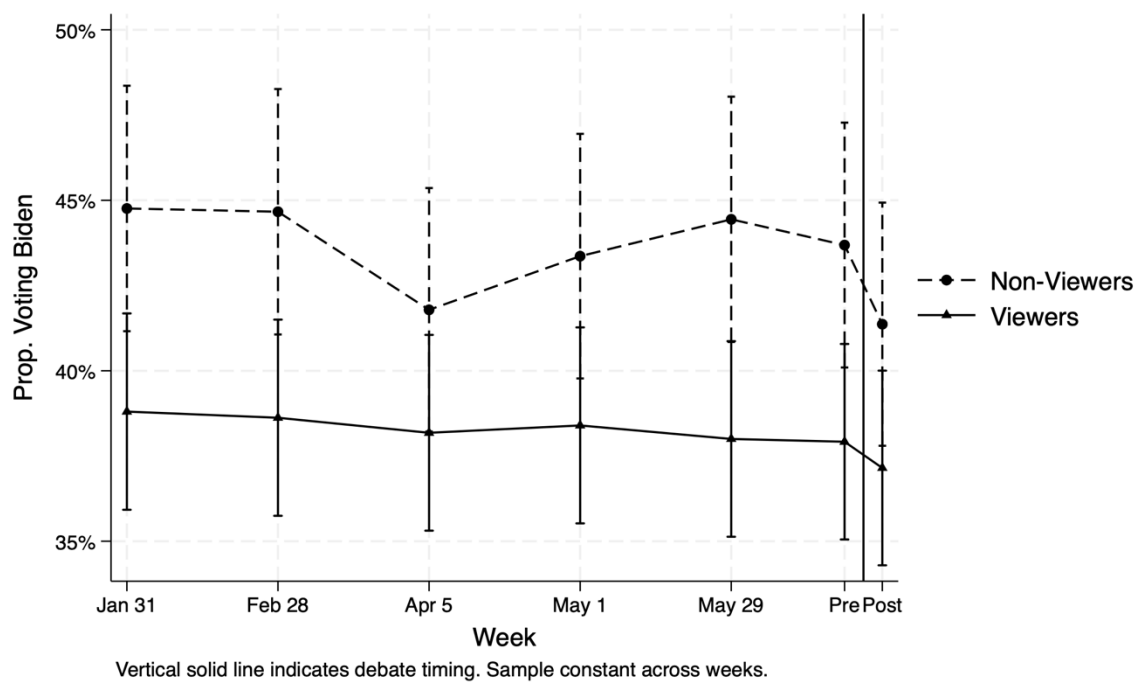
Table A6. Support for Biden pre- to post-debate, only among respondents who took the post-debate survey, using later Harris support as a proxy for post-debate Biden support. Baseline groups are non-intended-watchers, pre-campaign Biden voters, and post-debate survey invitations sent immediately following the debate. Outcome variable is change in Biden/Harris support, with post-debate support measured one or two months post-debate (whichever we first have data for), with support in each wave coded as 1 if a respondent said they planned to vote for Biden/Harris in November and 0 otherwise.

	Baseline	By Viewership	By Dec Vote	By Recontact
Post-Debate (baseline)	0.028*** (0.006)	0.034*** (0.010)	0.015** (0.007)	0.038*** (0.014)
Post-Debate X Intended Watcher		-0.010 (0.012)		
Post-Debate X Dec Trump Voters			-0.018** (0.007)	
Post-Debate X Dec Other Voters			0.123*** (0.029)	
Post-Debate X Fri AM				-0.018 (0.016)
Post-Debate X Fri PM				-0.030* (0.018)
Post-Debate X Sat AM				-0.027 (0.019)
Post-Debate X Sun AM				0.028 (0.023)
Constant	0.317*** (0.003)	0.317*** (0.003)	0.317*** (0.003)	0.317*** (0.003)
Adj R-squared	0.013	0.014	0.059	0.021
N	4630	4630	4630	4630

Note: Robust standard errors clustered at the respondent level in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure A1. Time series of Biden vote intention by group.



Is a 1.1-percentage-point change large in our sample, or is this normal variation? The final two data points show the drop in support for Biden following the debate. The only other large drop in support is roughly 3 percentage points for non-viewers and roughly 1 percentage point for viewers from week 8 to week 12. Some of the apparent change in candidate support between weeks 8 and week 12 may be due to changes in survey methodology. Biden and Trump secured their respective nominations for president between weeks 8 and 12 of our panel. At that time, the question wording for vote choice changed from a head-to-head contest between two candidates (e.g., Biden-Trump) to a choice from among a full set of general election candidates, including third parties.

Tables B1, B2, and B3 correspond to the coefficient plot in Figure 1.

Table B1. Estimated change in attitudes from before to after the debate with interaction by vote choice, including individual level fixed effects.

	Nov. 2024 voting likelihood (1- 5, += more likely)	Joe Biden favorability (1- 5, += more favorable)	Donald Trump favorability (1- 5, += more favorable)	National winner prediction (1- 5, +=Trump)
Post-Debate Effect (Baseline: Biden Voters)	-0.012 (0.008)	-0.179*** (0.019)	-0.006 (0.014)	0.343*** (0.018)
Post-Debate Effect for Trump Voters	0.012 (0.011)	0.188*** (0.024)	0.013 (0.023)	-0.214*** (0.025)
Post-Debate Effect for Other Voters	0.011 (0.024)	0.143*** (0.037)	0.078** (0.034)	-0.095*** (0.032)
Constant	4.633*** (0.003)	2.605*** (0.005)	2.557*** (0.005)	3.094*** (0.005)
Adj R-squared	0.000	0.022	0.001	0.103
N	4646	4557	4576	4646
Mean (Biden)	4.90	4.26	1.10	2.01
Mean (Trump)	4.89	1.12	4.33	4.20
Mean (Other)	3.45	1.99	1.94	3.15

Note: Turnout: DK= 1; Fav + Prediction: DK = 3. Robust standard errors clustered at the respondent level in parentheses. N refers to the total number of respondents taking both survey waves with valid responses to the outcome variable; analysis is restricted to this sample.

* p < 0.10, ** p < 0.05, *** p < 0.01

Table B2. Estimated change in attitudes from before to after the debate with interaction by vote choice, including individual level fixed effects.

	Biden too old (0-1)	Trump too old (0-1)	Biden replaced as nominee (0-1)	Trump replaced as nominee (0-1)
Post-Debate Effect (Baseline: Biden Voters)	0.094*** (0.008)	0.050*** (0.008)	0.175*** (0.011)	0.015* (0.008)
Post-Debate Effect for Trump Voters	-0.086*** (0.010)	-0.063*** (0.009)	-0.167*** (0.016)	-0.041*** (0.010)
Post-Debate Effect for Other Voters	-0.046*** (0.012)	-0.035*** (0.012)	-0.079*** (0.019)	-0.005 (0.015)

Constant	0.677*** (0.002)	0.405*** (0.002)	0.475*** (0.003)	0.526*** (0.002)
Adj R-squared	0.051	0.017	0.067	0.004
N	4185	4135	3660	4168
Mean (Biden)	0.47	0.62	0.30	0.88
Mean (Trump)	0.85	0.10	0.57	0.10
Mean (Other)	0.83	0.63	0.75	0.70

Note: DK = 0.5. Robust standard errors clustered at the respondent level in parentheses. N refers to the total number of respondents taking both survey waves with valid responses to the outcome variable; analysis is restricted to this sample.

* p < 0.10, ** p < 0.05, *** p < 0.01

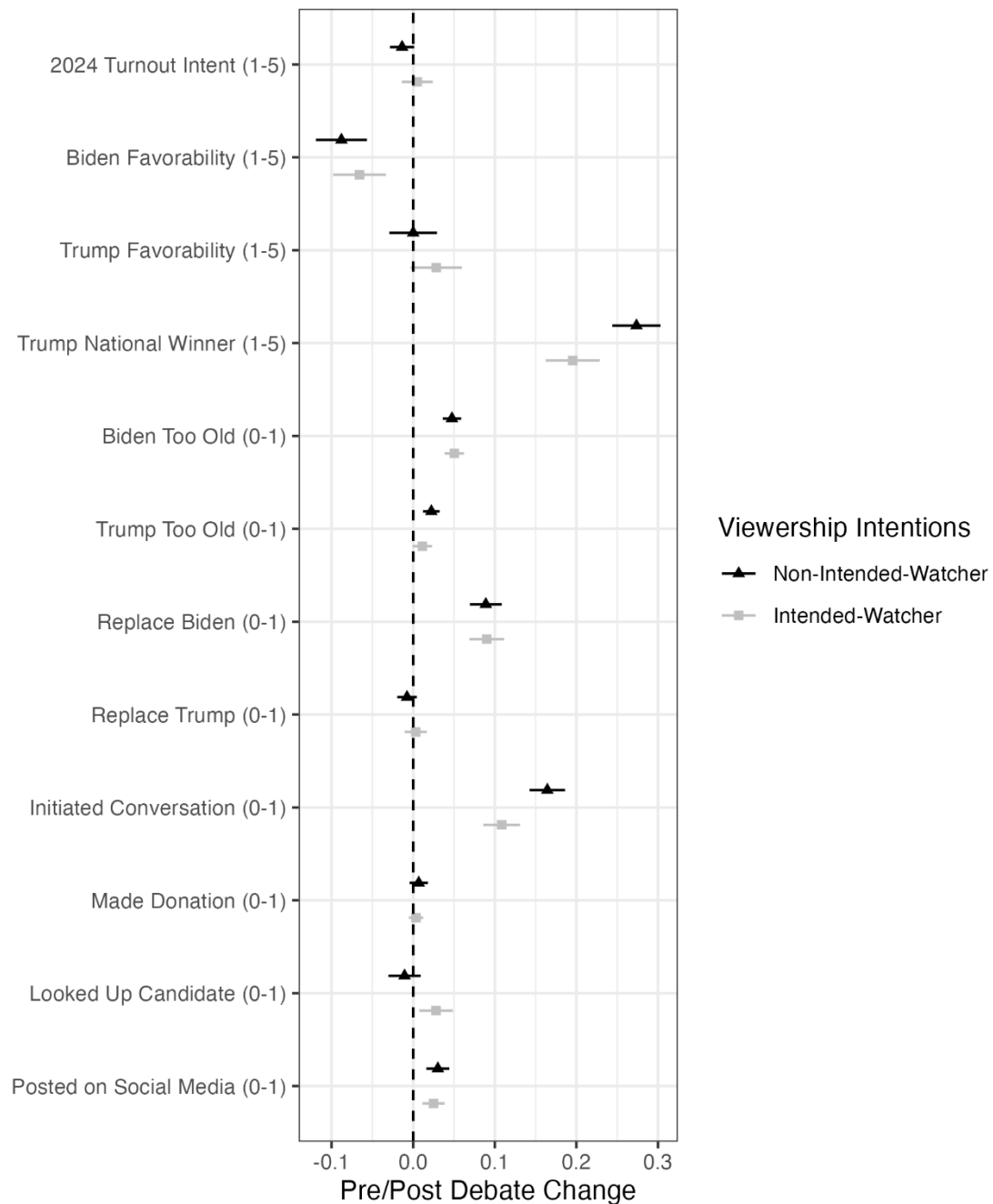
Table B3. Estimated change in attitudes from before to after the debate with interaction by vote choice, including individual level fixed effects.

	Initiated a conversation about politics (in last 48 hours) (0-1)	Donated to a candidate (in last 48 hours) (0-1)	Looked up information about a candidate (in last 48 hours) (0-1)	Posted on social media about a candidate (in last 48 hours) (0-1)
Post-Debate Effect (Baseline: Biden Voters)	0.153*** (0.013)	0.015** (0.007)	-0.011 (0.012)	0.029*** (0.008)
Post-Debate Effect for Trump Voters	-0.011 (0.018)	-0.016* (0.009)	0.018 (0.016)	-0.001 (0.011)
Post-Debate Effect for Other Voters	-0.047** (0.022)	-0.016* (0.009)	0.054*** (0.020)	-0.007 (0.013)
Constant	0.369*** (0.004)	0.065*** (0.002)	0.253*** (0.003)	0.153*** (0.002)
Adj R-squared	0.063	0.001	0.001	0.006
N	4646	4646	4646	4646
Mean (Biden)	0.38	0.09	0.28	0.17
Mean (Trump)	0.41	0.06	0.25	0.16
Mean (Other)	0.27	0.02	0.23	0.09

Note: DK = 0. Robust standard errors clustered at the respondent level in parentheses. N refers to the total number of respondents taking both survey waves with valid responses to the outcome variable; analysis is restricted to this sample.

* p < 0.10, ** p < 0.05, *** p < 0.01

Figure C1. Estimated change in attitudes from before to after the debate by whether respondents intended to view the debate.



Note: Lines represent 95% confidence intervals. For each outcome, we estimate a pooled regression with the indicator for post-debate interacted with debate viewership intention. Corresponding regression tables appear in Appendix Tables C1–C3.

We begin Figure C1 by presenting a coefficient plot of the estimated changes in the same outcome variables discussed above by whether respondents indicated they intended to view the debate. Overall, we see very few differences between the two groups, and on most outcome measures, we find no differences. However, a few differences that do emerge are

worth highlighting. First, non-intended-watchers seemed to respond *more* strongly to the debate in updating their expectations about who would win the election, moving more toward the view that Trump would win ($p < 0.01$). Additionally, they were also more likely to initiate a conversation about politics following the debate ($p < 0.01$). It is possible a lower baseline attention to politics might explain these larger effects.

Tables C1, C2, and C3 correspond to the coefficient plot in Figure C1.

Table C1. Estimated change in attitudes from before to after the debate with interaction by viewership intention, including individual level fixed effects.

	Nov. 2024 voting likelihood (1-5, += more likely)	Joe Biden favorability (1- 5, += more favorable)	Donald Trump favorability (1- 5, += more favorable)	National winner prediction (1-5, +=Trump)
Post-Debate	0.005 (0.010)	-0.066*** (0.016)	0.028* (0.016)	0.196*** (0.017)
Intended Debate Watcher Post- Debate	-0.019 (0.012)	-0.022 (0.023)	-0.028 (0.022)	0.078*** (0.023)
Constant	4.633*** (0.003)	2.605*** (0.005)	2.557*** (0.005)	3.094*** (0.005)
Adj R-squared	0.000	0.010	0.000	0.091
N	4646	4557	4576	4646
Mean (Watched)	4.83	2.65	2.74	3.14
Mean (Not Watched)	4.40	2.55	2.30	3.04

Note: Turnout: DK = 1; Fav + Prediction: DK = 3. Robust standard errors clustered at the respondent level in parentheses. N refers to the total number of respondents taking both survey waves with valid responses to the outcome variable; analysis is restricted to this sample.

* p < 0.10, ** p < 0.05, *** p < 0.01

Table C2. Estimated change in attitudes from before to after the debate with interaction by viewership intention, including individual level fixed effects.

	Biden too old (0-1)	Trump too old (0-1)	Biden replaced as nominee (0- 1)	Trump replaced as nominee (0-1)
Post-Debate	0.050*** (0.006)	0.011* (0.006)	0.090*** (0.011)	0.003 (0.007)
Intended Debate Watcher Post- Debate	-0.003 (0.008)	0.011 (0.008)	-0.001 (0.015)	-0.011 (0.009)
Constant	0.677*** (0.002)	0.405*** (0.002)	0.475*** (0.003)	0.526*** (0.002)
Adj R-squared	0.031	0.005	0.039	0.000
N	4185	4135	3660	4168
Mean (Watched)	0.68	0.34	0.46	0.47
Mean (Not Watched)	0.71	0.48	0.54	0.60

Note: DK = 0.5. Robust standard errors clustered at the respondent level in parentheses. N refers to the total number of respondents taking both survey waves with valid responses to

the outcome variable; analysis is restricted to this sample.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

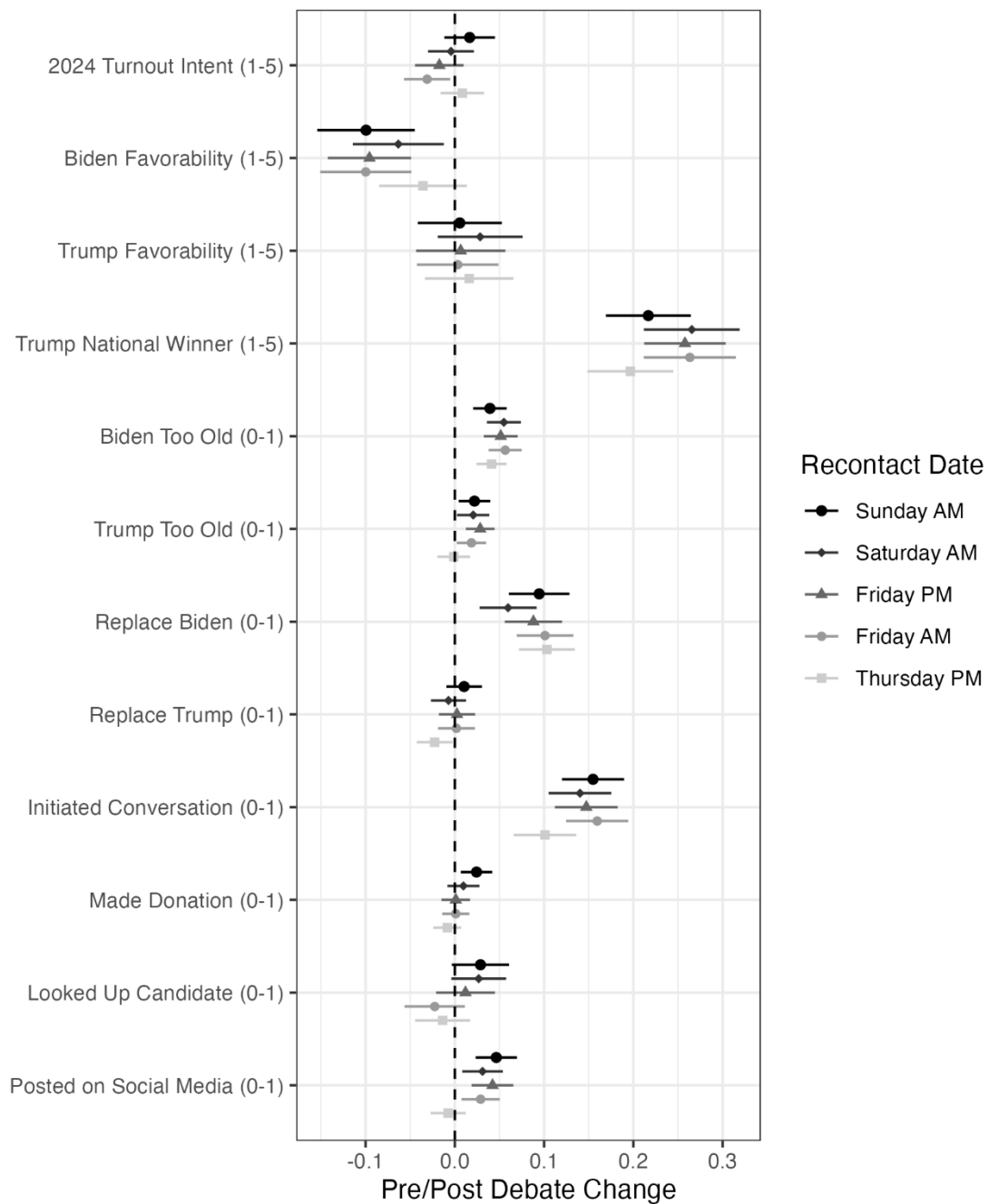
Table C3. Estimated change in attitudes from before to after the debate with interaction by viewership intention, including individual level fixed effects.

	Initiated a conversation about politics (in last 48 hours) (0-1)	Donated to a candidate (in last 48 hours) (0-1)	Looked up information about a candidate (in last 48 hours) (0-1)	Posted on social media about a candidate (in last 48 hours) (0-1)
Post-Debate	0.108*** (0.011)	0.004 (0.004)	0.028*** (0.011)	0.025*** (0.007)
Intended Debate	0.056*** (0.016)	0.003 (0.007)	-0.039*** (0.015)	0.005 (0.010)
Watcher Post-Debate				
Constant	0.369*** (0.004)	0.065*** (0.002)	0.253*** (0.003)	0.153*** (0.002)
Adj R-squared	0.064	0.000	0.001	0.006
N	4646	4646	4646	4646
Mean (Watched)	0.45	0.09	0.30	0.19
Mean (Not Watched)	0.26	0.04	0.19	0.10

Note: DK = 0. Robust standard errors clustered at the respondent level in parentheses. N refers to the total number of respondents taking both survey waves with valid responses to the outcome variable; analysis is restricted to this sample.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure D1. Estimated change in attitudes from before to after the debate by recontact date.



Note: Lines represent 95% confidence intervals. For each outcome, we estimate a pooled regression with the indicator for post-debate interacted with each recontact time. We include the corresponding regression tables in Appendix Tables D1–D3.

The debate was held on the evening of Thursday, June 27, 2024, and our baseline group consists of respondents invited that evening. The remaining interaction terms are separated into morning and afternoon invite groups on Friday (the day after the debate), as

well as a morning invite group on both Saturday (two days after) and Sunday (three days after). Estimates are tightly clustered and some attenuate over time while others grow larger, and still others simply experience seemingly random variability.

Specifically, we find a decrease in Biden's favorability in all the invite groups relative to the Thursday evening group. We also find later invite groups are more likely to predict that Trump will win the election, with the exception of the Sunday group, relative to the Thursday group. We see no other differential effects on changes to attitudes toward the candidates based on invite times.

We also find some evidence that political activity rose in the days following the debate. Across all later invite groups, we identify larger changes relative to the Thursday group for each of the political activity variables (except for seeking information about a candidate by the Friday afternoon invite group). However, this effect is only consistently significant for respondents posting on social media and may simply reflect the group interviewed immediately after the debate having less time to do these activities before being interviewed.

Tables D1, D2, and D3 correspond to the coefficient plot in Figure D1.

Table D1. Estimated change in attitudes from before to after the debate with interaction by recontact timing, including individual level fixed effects.

	Nov. 2024 voting likelihood (1-5, += more likely)	Joe Biden favorability (1- 5, += more favorable)	Donald Trump favorability (1- 5, += more favorable)	National winner prediction (1-5, +=Trump)
Post-Debate Effect (Baseline: Thurs PM)	0.008 (0.012)	-0.036 (0.025)	0.016 (0.025)	0.197*** (0.025)
Post-Debate Effect for Fri AM	-0.039** (0.018)	-0.064* (0.036)	-0.013 (0.034)	0.067* (0.036)
Post-Debate Effect for Fri PM	-0.026 (0.019)	-0.060* (0.035)	-0.010 (0.036)	0.061* (0.034)
Post-Debate Effect for Sat AM	-0.013 (0.018)	-0.028 (0.036)	0.012 (0.035)	0.069* (0.037)
Post-Debate Effect for Sun AM	0.008 (0.019)	-0.064* (0.037)	-0.011 (0.035)	0.020 (0.035)
Constant	4.633*** (0.003)	2.605*** (0.005)	2.557*** (0.005)	3.094*** (0.005)
Adj R-squared	0.001	0.011	-0.000	0.089
N	4646	4557	4576	4646
Mean (Baseline: Thurs PM)	4.61	2.66	2.50	3.06
Mean (Fri AM)	4.68	2.58	2.63	3.16
Mean (Fri PM)	4.66	2.55	2.63	3.10
Mean (Sat AM)	4.58	2.59	2.53	3.06
Mean (Sun AM)	4.58	2.64	2.51	3.10

Note: Turnout: DK = 1; Fav + Prediction: DK = 3. Robust standard errors clustered at the respondent level in parentheses. N refers to the total number of respondents taking both survey waves with valid responses to the outcome variable; analysis is restricted to this sample.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table D2. Estimated change in attitudes from before to after the debate with interaction by recontact timing, including individual level fixed effects.

	Biden too old (0-1)	Trump too old (0-1)	Biden replaced as nominee (0- 1)	Trump replaced as nominee (0-1)
Post-Debate Effect (Baseline: Thurs	0.041***	-0.001	0.103***	-0.023**

PM)				
	(0.009)	(0.009)	(0.016)	(0.010)
Post-Debate Effect for Fri AM	0.015	0.020	-0.002	0.024*
	(0.013)	(0.013)	(0.023)	(0.015)
Post-Debate Effect for Fri PM	0.010	0.030**	-0.015	0.025*
	(0.013)	(0.012)	(0.023)	(0.015)
Post-Debate Effect for Sat AM	0.014	0.022*	-0.043*	0.015
	(0.013)	(0.013)	(0.023)	(0.014)
Post-Debate Effect for Sun AM	-0.002	0.023*	-0.009	0.033**
	(0.013)	(0.013)	(0.024)	(0.014)
Constant	0.677***	0.405***	0.475***	0.526***
	(0.002)	(0.002)	(0.003)	(0.002)
Adj R-squared	0.031	0.006	0.040	0.001
N	4185	4135	3660	4168
Mean (Baseline: Thurs PM)	0.67	0.44	0.47	0.55
Mean (Fri AM)	0.65	0.39	0.45	0.51
Mean (Fri PM)	0.67	0.39	0.47	0.51
Mean (Sat AM)	0.65	0.41	0.46	0.52
Mean (Sun AM)	0.68	0.41	0.47	0.54

Note: DK = 0.5. Robust standard errors clustered at the respondent level in parentheses. N refers to the total number of respondents taking both survey waves with valid responses to the outcome variable; analysis is restricted to this sample.

* p < 0.10, ** p < 0.05, *** p < 0.01

Table D3. Estimated change in attitudes from before to after the debate with interaction by recontact timing, including individual level fixed effects.

	Initiated a conversation about politics (in last 48 hours) (0-1)	Donated to a candidate (in last 48 hours) (0-1)	Looked up information about a candidate (in last 48 hours) (0-1)	Posted on social media about a candidate (in last 48 hours) (0-1)
Post-Debate Effect (Baseline: Thurs PM)	0.101***	-0.008	-0.014	-0.007
	(0.018)	(0.008)	(0.016)	(0.010)
Post-Debate Effect for Fri AM	0.059**	0.009	-0.009	0.036**
	(0.025)	(0.011)	(0.023)	(0.015)
Post-Debate Effect for Fri PM	0.046*	0.009	0.026	0.050***
	(0.025)	(0.011)	(0.023)	(0.016)

Post-Debate Effect for Sat AM	0.039 (0.025)	0.018 (0.012)	0.040* (0.022)	0.038** (0.015)
Post-Debate Effect for Sun AM	0.054** (0.025)	0.033*** (0.012)	0.042* (0.023)	0.054*** (0.016)
Constant	0.369*** (0.004)	0.065*** (0.002)	0.253*** (0.003)	0.153*** (0.002)
Adj R-squared	0.063	0.002	0.001	0.009
N	4646	4646	4646	4646
Mean (Baseline: Thurs PM)	0.37	0.06	0.25	0.16
Mean (Fri AM)	0.36	0.06	0.24	0.15
Mean (Fri PM)	0.36	0.07	0.26	0.14
Mean (Sat AM)	0.37	0.06	0.25	0.15
Mean (Sun AM)	0.38	0.07	0.25	0.16

Note: DK = 0. Robust standard errors clustered at the respondent level in parentheses. N refers to the total number of respondents taking both survey waves with valid responses to the outcome variable; analysis is restricted to this sample.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table E1. Effect of debate on commonly measured attitudes toward Kamala Harris (and Donald Trump). Turnout: DK= 1; Fav + Prediction: DK = 3

	Nov 2024 voting likelihood (1-5, += more likely)	Kamala Harris favorability (1- 5, += more favorable)	Donald Trump favorability (1- 5, += more favorable)	National winner prediction (1- 5, +=Trump)
Post-Debate	0.028*** (0.006)	0.052*** (0.009)	-0.019** (0.009)	-0.050*** (0.009)
Adj R-squared	0.004	0.007	0.001	0.006
N	4678	4787	4803	4824
Mean	4.79	2.83	2.59	2.96

Note: Individual-level fixed effects. Robust standard errors clustered at the respondent level in parentheses. N refers to the total number of respondents taking both survey waves with valid responses to the outcome variable; analysis is restricted to this sample.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Effects are smaller than those caused by the June debate. Additionally, respondents are significantly more likely to express an intention to vote in November (0.028, $p < 0.01$) and predict that Harris will ultimately win the election (-0.050, $p < 0.01$). We note that this may have been the first time many respondents observed Harris as a candidate.