Modalities of Political Engagement on Social Media and Voting for Donald Trump: Capturing Heterogeneity by Race over Time

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This manuscript was compiled on January 12, 2026

The widespread adoption of social media has radically altered the American political communication environment, transforming how citizens access information, express political opinions, and engage with candidates and campaigns. However, the relationship between modes of political engagement on social media and political actions, such as voting behavior, remains understudied. This study provides a systematic, temporal analysis of the relationships between distinct modalities of political engagement on social media (e.g. liking, following, forwarding, commenting on and posting political content) and support for Donald Trump across three election cycles — 2016, 2020, and 2024. Using self reported measures of social media use from the Cooperative Election Study (CES), we show that among social media users, politically engaged voters were significantly more likely to vote for Trump in all three elections. Exploring racial heterogeneity, we also show that in 2024, the difference in support for Trump between politically engaged and unengaged social media users was the largest among Asian Americans. Moreover, politically engaged Hispanic voters went from being less likely to vote for Trump in 2016 to being significantly more likely to vote for him in 2020. Our findings reveal variation by race and modes of political engagement. We found that social media use itself is negatively associated with voting for Trump, but political engagement on such platforms is positively tied to it.

Social Media | Political Engagement | Voting Behavior | Temporal Analysis

Significance Statement

Second of three dissertation papers. Under Review. Please DO NOT share.

The upset election victory of Donald Trump in 2016 and the concurrent rise of social media platforms as modes of political campaigning and engagement have fundamentally reshaped the American political landscape. These parallel phenomena are often viewed as deeply intertwined, with platforms like Twitter and Facebook seen as instrumental to Trump's electoral success. Digital media platforms changed how citizens encounter political information(1, 2), how populist candidates like Mr. Trump built trust(3) among voters, and how they used social media for agenda setting in the mainstream press(4). This transformation has spurred an extensive line of research investigating the link between digital engagement and real-world political behaviors, including both turnout and vote choice. However, while it is widely believed that social media played a crucial role in the 2016 and 2020 elections, the precise nature of this relationship—how specific online actions translate into offline ballot-box decisions—remains underexplored.

A foundational premise in political science is that engagement with political information and discourse is predictive of greater participation (5). Social media platforms dramatically lower the costs of such engagement(6, 7), creating a stream of political content delivered directly into users' personal networks. This environment facilitates not just passive consumption but also a spectrum of interactive behaviors, from low-cost "likes" to more active sharing and commenting to posting original political content. Early research in the social media era demonstrated the potential of these platforms to mobilize citizens, with large-scale experiments showing that social cues on Facebook could tangibly increase real-world voting (8).

Past research has also reported on the relationship between engagement modalities like liking, forwarding, commenting, and posting political content and offline political behavior. The easiest form of engagement is reading or viewing content, which has been reported to have had only a weak association with voting, if any(9, 10). The next level of engagement involves liking or commenting on political content, and is known to have a relatively stronger association(7, 8) with political behavior offline compared to merely seeing content.

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Moving further in this hierarchy of engagement levels, we see users who share, forward, or repost content, thereby amplifying its reach. Researchers(7, 11**?**) have identified several mechanisms by which such activities shape offline political outcomes, such as gateway effects, echo chambers, and increased affective polarization. Finally, the highest tier of engagement on social media platforms is to post original political content(9), and such users are already highly politically engaged in the offline space(**?**).

Yet, as the digital ecosystem has matured and become more polarized, the optimistic view of social media as a purely mobilizing force has been complicated. Scholars now grapple with whether these platforms primarily activate existing partisans or if they can persuade and mobilize a wider, less-engaged segment of the population (7). The role of social media-driven misinformation(12) in helping populist candidates bypass filters of the moderated mainstream press, and use emotive appeals(**?**) to aggravate affective polarization, have invited critical evaluations.

This debate is particularly salient in the context of Donald Trump, whose candidacy and first presidency were characterized by a unique use of social media to bypass traditional media gatekeepers and build a powerful, direct channel to his supporters (13). His use of platforms like Twitter was not just a communication strategy. It became a central feature of his political brand(1, 3), presenting amateurism as authenticity (**?**). Past research also shows how the Trump 2016 campaign substituted traditional mobilization and campaign apparatus of the RNC with a social media-centered strategy. Eventually, Mr. Trump moved to Truth Social in 2022 after social media bans from other platforms, yet maintained a strong presence on the platform. Trump's disproportionate emphasis on social media for campaigning and mobilization makes him of particular interest to our study.

Much of the past research on social media's impact on politics has focused on the dynamics of a single election cycle. This overlooks long term temporal changes in relationships between social media activities and offline political activities. Moreover, different modes of engagement—passively reading content versus actively reacting to or amplifying it—may have different relationships with political behavior behavior (6**?**). But no prior study, to our knowledge, captures this relationship with electoral support for Mr. Trump. Furthermore, prior work has shown that media effects on support for Trump are heterogeneous across racial and ethnic identities, as well as by gender, immigrant background, and educational attainment. These findings, however, also show yet another limitation of extant literature — they rarely include accurate information about race or ethnicity and therefore obscure analysis of racial heterogeneity in social media effects on voting behavior. Moreover, the use of non-probability convenience samples, often drawn from among social media users limits the generalizability of their findings.

This study addresses these critical gaps by (1) quantifying the relationship between distinct modalities of political engagement on social media and voting for Donald Trump, (2) measuring the temporal change in this relationship across three election cycles (2016-2024), and (3) revealing racial heterogeneity in this relationship and its temporal evolution. Using nationally representative pooled cross-sectional data from the Cooperative Election Study (CES) for the 2016, 2020 and 2024 US presidential elections, we investigate whether a durable association exists between Americans' engagement with political material on social media and who they vote for. We move beyond generic measures of social media use to examine specific engagement behaviors such as liking, following, forwarding, commenting, and posting political content. Our central hypothesis is that engaging with political content on social media is positively associated with the likelihood of voting for Trump. We then probe this relationship further through a key research question: How does this association vary across racial identities? By analyzing online behaviors and voter demographics across three contentious election cycles, this paper enhances our understanding of social media's role in contemporary American politics. In doing so, we provide critical insights into the dynamics of support for populists like Trump in an increasingly fragmented and digitally mediated American public sphere.

Background

Researchers have scrutinized the relationship between social media and the rise Donald Trump in the US. In this section, we enumerate studies that link political engagement with political behavior, how social media-based engagement may alter such behavior, and the key contributions and limitations of the prevailing literature.

Social Media and Donald Trump. Past work(14, 15) has documented how social media facilitated the rise of populism around the world, including the victory of Mr. Trump in the US. Several mechanisms have been proposed to explain why the affordances of social media platforms aid populist candidates like him. In particular, platforms like Twitter turned amateurism and authenticity into political currency in ways that elite-moderated media platforms did not (1). This helped candidates like Trump build trust among voters(3), easing his path to electoral viability(1, 3). Trump used Twitter effectively to build his own brand as an anti-establishment candidate(16).

Other studies have considered the agenda-setting effect of social media, whereby Trump effectively used Twitter to divert media discourse away from issues that are presumed to be disadvantageous to him toward more favorable issues (4, 17**?**). For instance, Lewandowsky et al. (2020) find that rump increased tweeting on unrelated or advantageous issues following the release of negative news about the Russia investigation, and that this surge was followed by a measurable decline in subsequent coverage of the unfavorable story by major outlets such as The New York Times and ABC News (17). Likewise, Chen et al. (2022) show that increases in adverse pandemic indicators coincided with Trump putting greater emphasis on favorable themes such as the economy and jobs, effectively shifting public and media discourse (4). Together, these findings indicate that Trump effectively used Twitter as an agenda-setting tool to shift media and public discourse toward issues more advantageous to his political standing.

Finally, prior research has examined how presidential candidates have used social media to mobilize voters, often contrasting Barack Obama's integration of digital tools with traditional field operations against Donald Trump's far more

platform-centric strategy. For example, Mork (2020) shows that whereas Obama's campaigns used social media primarily to complement offline volunteer networks, Trump's 2016 campaign relied heavily on platforms such as Facebook and Twitter as the primary infrastructure for mobilization. Trump's campaign emphasized follower growth, rapid content amplification, and platform-native calls to action, generating high engagement despite comparatively weaker on-the-ground organization. This evidence highlights the dominance of social media platforms in Trump's mobilization efforts (18).

Political Engagement and Political Behavior. A foundational premise in the study of political behavior is that political engagement—whether measured as information seeking, expressive activity, or interaction—tends to be predictive of political participation, particularly voting(8). Classic mobilization theories posit that more frequent exposure to political messages and opportunities for interaction should lower the cost of political activity and facilitate participation(9**?**). Social media dramatically lowers such costs (2) by delivering political content directly to users' handheld devices, making it easier than ever to view, react to, and spread political information.

Empirical research prior to the rise of social media consistently found that higher political involvement and exposure correlated positively with turnout and mobilization(**?**). With the growth of platforms such as Facebook, Twitter/X, and YouTube, researchers observed that political behaviors—both online and offline—might be meaningfully shaped by online engagement. A landmark experimental study with a sample of over 60 million users on Facebook found that exposure to social mobilization messages, including seeing others' engagement (e.g., "I Voted" badges, friends' voting), increased real-world voting behavior(8). Moreover, in 2016, both presidential candidates – Trump and Hillary Clinton – used social media to mobilize voters by convincing co-partisans of their likelihood of winning(19). Given these two findings — that Mr. Trump benefited from campaigning on social media platforms and that political engagement on social media has tangible impact on voting behavior — we arrive at the following hypothesis:

Hypothesis 1: *Social media users who engaged with political content are more likely to vote for Trump than those who did not engage with political content.*

We also include the following research question in our study to examine racial heterogeneity in this relationship.

> **RQ1:** *How does the relationship between voting for Trump and political engagement on social media vary by race?*

Subsequent studies have explored the nuances of political engagement. Researchers began to ask whether shallow behaviors (viewing or reading content), reactive behaviors (liking or reacting), or amplifying behaviors (sharing, reposting, posting) were differentially related to political attitudes or action. Critically, while these activities are more common among more politically interested users, they also channel social reinforcement, feedback, and algorithmic amplification. Such processes can also intensify mobilization on one hand and political polarization on the other(20**?**). The next subsection enumerates past studies that considered these distinct modalities of political engagement and their relationships with offline political behavior.

Engagement Modalities and Political Behavior. The most common and basic form of political engagement on social media is viewing or reading political content. Unlike offline environments, major social media platforms expose individuals to political information not necessarily by deliberate choice, but as a byproduct of algorithmic feeds, peer activity, and targeted advertising(21). Social media users do not need to explicitly seek political information to encounter it in their feeds. Past research that links online engagement with offline political behavior has largely yielded null results, though. While observational research repeatedly finds that individuals who are more exposed to political content online are also more likely to report higher political knowledge and turnout(9), the direction of causality is challenging to establish because politically motivated users may seek out such content. Indeed, studies that used randomized controlled trials (RCTs) to manipulate content viewed by users on Facebook and Instagram did not produce immediate changes in their political attitudes(10, 22). Comparable experiments that altered partisan lean of content fed to users on YouTube did not yield significant changes in political attitudes or political participation in the short run(23**?**). While these works illustrate the lack of any immediate effect, our study is focused on long term changes in voting behavior over a period of eight years.

The next tier of engagement covers likes, reactions, and comments, typically considered weaker forms of engagement than sharing or posting, but more active than passive viewing. These actions provide immediate social signals to algorithms and networks, often shaping what is amplified or made visible, and reinforcing in-group/out-group bonds(24). Compared to reading or viewing content, engagement through liking or commenting has shown modest links with offline political participation. For instance, Bode and colleagues(**?**) find that users who 'like' or comment on political tweets report greater interest and are more active in sharing and participation. In the Facebook field experiment by Bond et al.(8), simply seeing friends' likes or comments on voting mobilization content significantly increased the likelihood of turnout, showing that social cues embedded in such weak-tie actions can have real effects. Other studies(**?**) that attempted to link reactive engagement with offline participation have yielded null results, suggesting the need for nuance in proclaiming reactive social media engagement as a predictor of voting behavior.

Sharing, forwarding, and reposting are more active amplification behaviors—turning audiences into broadcasters, not just consumers. Experimental and observational evidence provides a more consistent relationship between active sharing and political action, especially in highly salient moments like elections. Mosleh et al.(**?**) demonstrated experimentally that content designed to trigger emotion is more widely shared and can shape beliefs about political events, suggesting a pathway from content characteristics to behavior via social transmission. Moreover, users who share political content are generally more likely to participate in politics beyond social media, including voting(20**?**). However, here too, we see evidence for caution. Whereas large field experiments that sought to manipulate sharing features on Facebook found

no measurable change on individual attitudes, others have reported short term effects vis-a-vis affective polarization(25**? ?**). Therefore, studies of the relationship between sharing or reposting content and voting behavior, thus, remain inconclusive, especially when we consider longer time periods.

Perhaps the highest level of social media engagement occurs when users create and post original political content. Posters serve as both opinion leaders and content sources for their networks, a crucial node in the online information ecosystem. Research has consistently found that individuals who post political content are among the most politically active and expressive segment of users, both online and offline (26). They are disproportionately engaged in offline participation, campaign volunteering, and voting(9). However, this group is unrepresentative as they are more partisan, ideological, older, and more civic-minded than typical social media users.

These findings motivate our second research question:

> **RQ2A:** *Which modes of political engagement have a significant relationship with the probability of voting for Trump?*

Political Engagement and Long-term Change in Political Behavior. A particularly important question for this study is whether long term exposure, engagement, or posting is associated with voting behavior. This is especially important in the context of studying support for Mr. Trump, who was on the presidential ballot for three consecutive years.

Literature on long-term effects offer a mixed picture. Panel data studies extending from several months to a year observed stability in attitudes, with only marginal evidence for cumulative increases in polarization or shifts in candidate support(27). On the other hand, experiments that exposed users to content from ideological opponents for a month found that polarization increased after the intervention(28). Observational studies leveraging Facebook ad data found that targeted microtargeting campaigns may have tilted undecided voters toward Trump and increased Republican turnout(29). A quasi-experimental county-level study found that higher Twitter penetration was associated with lower Republican (and thus Trump) vote share in 2016 and 2020, suggesting broader platform context, rather than simply engagement, may matter most(**? **).

These findings motivate our third research question which considers temporal change in the relationship between modes of political engagement and support for Trump:

> **RQ2B:** *How does the relationship between each mode of political engagement and voting for Trump change over time?*

Limitations of Current Work. Our literature review revealed substantial results that link political engagement with offline political behavior, especially voting behavior. Here, we list the gaps in current literature. First, most studies track short term changes. While some extend their study period to a year, we did not find any study that tracks changes in voting behavior with respect to political engagement on social media over multiple election cycles. In this study, we seek to remedy that by exploring this relationship over a period of eight years (three US presidential election cycles).

Second, most studies used non-probability samples in their analyses. A significant limitation is that most platform field experiments recruit active users of the platform in question and thus do not deploy nationally representative samples. This creates challenges in terms of the representativeness of the study populations. Noteworthy exceptions include nationally representative panel studies linked to web traces(30) and large surveys drawing from representative online panels (**? **). However, the overwhelming majority of studies rely on platform-based convenience samples. By using a nationally representative dataset – the Cooperative Election Study – we are attempting to address this limitation.

Third, reporting on race and ethnicity is rare in platform-based studies, as such information may be hard to infer from online profiles. However, there is ample evidence that patterns of preferences in social media consumption vary widely across racial and ethnic boundaries. Consequently, our study emphasizes on racial heterogeneity in analysing the relationship between political engagement and voting behavior.

Finally, virtually all major studies in this domain focus on the largest U.S. platforms—Facebook, Instagram, Twitter/X, and YouTube. Some research has also examined cross-platform effects or compared engagement effects across networks, but the bulk of longitudinal analyses are platform-specific(10, 22**? ** , 23). In this case, we are unable to address this lack of platform diversity in this study. The self-reported measures on social media use in the CES surveys do not query platform specific use, but do mention platforms like Facebook, Twitter, and YouTube by name in their questions.

Data & Methods

In this section, we present the datasets employed in our analysis along with the data manipulations we performed for our analysis. Additionally, we detail the model specifications for the two logistic regression models utilized in our study, and the rationale for the same.

We used data from the Cooperative Election Study for three consecutive presidential elections – 2016, 2020, and 2024. The Cooperative Election Study (CES), formerly the Cooperative Congressional Election Study (CCES), is the largest academic survey of U.S. elections, conducted biennially since 2006. In 2016, the CCES surveyed about 64,600 respondents recruited by YouGov through matched random sampling from the American Community Survey (ACS). Interviews occurred in two waves (Sept. 28–Nov. 7 and Nov. 9–Dec. 14, 2016). In 2020, it was renamed as the CES and surveyed 61,000 adults. The pre-election wave ran Sept. 29–Nov. 2, and the post-election wave from Nov. 8–Dec. 14, 2020. Sampling again relied on ACS and voter records, with YouGov constructing matched random samples. Vote validation, released in August 2021, confirmed turnout against state files, producing one of the most reliable election datasets. Response rates ranged from 61–69% depending on calculation. In 2024, CES surveyed 60,000 respondents across 60 teams. The pre-election wave ran Oct. 1–Nov. 4, and the post-election wave from Nov. 6–Dec. 10, 2024. State-level samples were large enough for precise estimates, including 4,000+ in California, Florida, and Texas.

Dependent Variable. For our dependent variable, we consider the candidate preference in presidential voting recorded in the

Table 1. Number of Respondents by Modalities of Political Engagement on Social Media by Race and Year

Year	Race/Ethnicity	Group N	Read Image	Follow Event	Forward Content	Post Comment	Post Image
2016	Asian	1,517	1,052	487	378	386	357
	Black	5,454	3,666	1,492	1,450	1,649	1,561
	Hispanic	3,850	2,776	1,184	1,088	1,245	1,253
	White	32,470	21,804	10,131	9,761	11,410	9,849
	Other	2,024	1,460	712	713	825	785
	Total	45,315	30,758	14,006	13,390	15,515	13,805
2020	Asian	1,450	924	343	355	257	251
	Black	5,057	2,638	907	1,149	1,155	1,163
	Hispanic	4,057	2,308	875	1,062	992	993
	White	33,715	20,066	7,973	8,967	10,270	8,194
	Other	2,195	1,370	576	672	753	626
	Total	46,474	27,306	10,674	12,205	13,427	11,227
2024	Asian	1,663	1,047	345	333	236	223
	Black	6,053	3,498	1,145	1,339	1,222	1,244
	Hispanic	4,289	2,575	838	1,060	827	846
	White	33,542	20,169	6,757	7,852	7,866	5,869
	Other	3,019	1,899	654	825	810	680
	Total	48,566	29,188	9,739	11,409	10,961	8,862

Table 2. Unweighted Summary Statistics of Dependent and Independent Variables by Year

Variable	2016	2020	2024
Trump Vote (1=Yes)	19,227	18,977	19,765
Trump Vote (0=No)	43,775	29,970	30,631
Total	63,002	48,947	50,396
No Social Media (SM)	19,285	14,526	11,434
No Political Activity on SM	7,906	14,121	14,791
Politically Active on SM	37,409	32,353	33,775
Total	64,600	61,000	60,000
Reads Political Image (Yes)	30,758	27,306	29,188
Reads Political Image (No)	14,557	19,168	19,378
Total	45,315	46,474	48,566
Follows Political Event (Yes)	14,006	10,674	9,739
Follows Political Event (No)	31,309	35,800	38,827
Total	45,315	46,474	48,566
Forwards Political Content (Yes)	13,390	12,205	11,409
Forwards Political Content (No)	31,925	34,269	37,157
Total	45,315	46,474	48,566
Posts Political Comment (Yes)	15,515	13,427	10,961
Posts Political Comment (No)	29,800	33,047	37,605
Total	45,315	46,474	48,566
Posts Political Image (Yes)	13,805	11,227	8,862
Posts Political Image (No)	31,510	35,247	39,704
Total	45,315	46,474	48,566

pre-election survey by the CES in each presidential election from 2016 to 2024.

Independent Variables. Our variable of interest is political engagement on social media. We construct this variable using a battery of six different questions on social media use that CES included in each of the three election cycles. First, the CES inquired if the respondent had used social media in the preceding 24 hours. Second, for respondents that answered in the affirmative to this question, the survey asked them the following five mutually independent questions (see table 2 for question wording): did the respondent post a story, photo, video or link about politics?, did they post a comment about politics?, did they read story or watch a video about politics?, did they follow a political event?, and did they forward a story, photo, video or link about politics to friends?. Each of these questions captures a different form of political engagement, with different implications for their relationship with presidential voting preference. For instance, passive engagement modes like reading or watching videos or following are much more common among users compared to active engagement like liking, sharing, and posting original content. The latter is more associated with politically expressive users, some of whom are affiliated with campaigns. We encapsulate all of these in a single variable called PESM (Political Engagement on Social Media)

Control Variables. Past research has identified significant relationships between demographic characteristics and voting behavior in presidential elections. First, political ideology - coded as a five-level variable ranging from very liberal to very conservative - has been strongly associated with voting preference (31, 32), including voting for Donald Trump(33). Additionally, partisanship—assessed across five levels—serves as a robust predictor of vote choice, as demonstrated by long term studies of partisan voting behavior(33, 34). Third, the relationship between voting behavior and gender is statistically significant(33, 35, 36), as is the relationship with sexuality(37, 38). Fourth, we find that not only was education a significant predictor of voting behavior in 2016(39), but also that educational polarization has increased during the Trump era(35). Finally, age and income have also been identified as key factors in the voting function(33). Finally, race too plays a role in vote choice(33, 35). We included each of these variables are controls in our analysis.

Statistical Modeling. To validate our hypotheses regarding the relationship between political engagement on social media and voting preference for Trump, we used two logistic regression

Table 3. Political Engagement on Social Media by Race & Year

Year	Race/ Ethnicity	Group N	No Social Media Use	No Political Engagement on Social Media	Politically Engaged on Social Media
2016	Asian	2,278	761	248	1,269
	Black	7,926	2,472	813	4,641
	Hispanic	5,238	1,388	483	3,367
	White	46,289	13,819	6,073	26,397
	Other	2,869	845	289	1,735
	Total	64,600	19,285	7,906	37,409
2020	Asian	1,831	381	404	1,046
	Black	6,952	1,895	1,704	3,353
	Hispanic	5,180	1,123	1,247	2,810
	White	44,128	10,413	10,166	23,549
	Other	2,909	714	600	1,595
	Total	61,000	14,526	14,121	32,353
2024	Asian	1,949	286	498	1,165
	Black	7,728	1,675	1,856	4,197
	Hispanic	5,150	861	1,247	3,042
	White	41,443	7,901	10,399	23,143
	Other	3,730	711	791	2,228
	Total	60,000	11,434	14,791	33,775

models. In both models, we used the preference for Trump voting as our dependent variable, and include all control variables. The models, run in Stata SE 18.5, differ in one regard. Model 1 (see equation 2) includes the three-level political engagement variable as an independent variable built as per equation 1. The second model (see equation 3) includes the five different social media variables as five independent variables. This formulation helps answer two separate questions – is there a relationship between political engagement on social media and voting For trump? And if so, which modality of political engagement is most strongly associated with it? For the latter, we consider five different modalities of political engagement - reading, liking, following, forwarding, and sharing.

$$political\_engagement = \begin{cases} 0, & \text{if } social\_media == 0 \\ 1, & \text{if } social\_media == 1 \\ 2, & \text{if } (reading \vee following \vee \\ & commenting \vee forwarding \\ & \vee posting) == 1 \end{cases} \quad [1]$$

It is pertinent to discuss our reasons for using two different models here. First, the aggregation of different types of political engagement into one variable in model 1 allows us to compare politically active voters on social media with those who aren't engaging with political content on these platforms and those who did not use social media. Second, the survey asked the questions on modalities only to those who responded affirmatively to using social media, reducing the size of the sample in the dataset used in model 2. Furthermore, a three-way interaction between engagement modalities, race (or age or gender), and year in model 2 could potentially leave the study underpowered. Therefore, we exclude interactions with demographic variables in model 2, and rely on model 1 for our intersectional analysis by race, age, and gender.

The specification for model 1 is as follows:

$$\begin{aligned} Trump\_Vote \sim & ideology + party\_identity + education + \\ & foreign\_born + sexuality + gender + \\ & family\_income + age + year + \\ & political\_engagement + race \\ & political\_engagement \times race \times year \\ & political\_engagement \times age \times year \\ & political\_engagement \times gender \times year \end{aligned} \quad [2]$$

The specification for model 2 is as follows:

$$\begin{aligned} Trump\_Vote \sim & ideology + party\_identity + education + \\ & foreign\_born + sexuality + gender + \\ & family\_income + age + year + \\ & (liking + reading + following \\ & + forwarding + positng) \times year \end{aligned} \quad [3]$$

Results

Our results show a strong and robust association between social media–based political engagement and support for Donald Trump in the 2016 presidential election. Across both model specifications, higher levels of online political engagement are consistently linked to a greater likelihood of voting for Trump, even after adjusting for standard demographic, partisan, and ideological covariates. We further find evidence of heterogeneity in these associations across racial groups, indicating that the relationship between online engagement and vote choice operates differently across demographic contexts.

In this section, we enumerate the results of our statistical modeling.

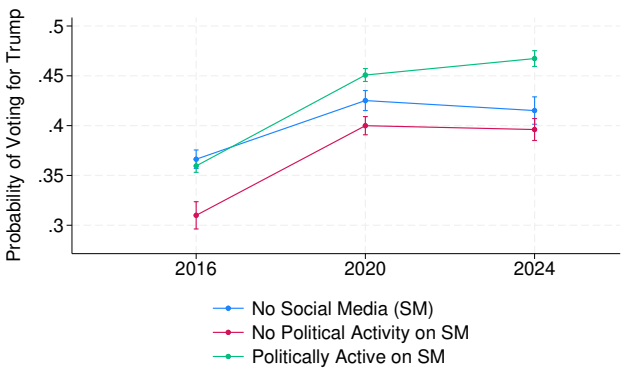

Fig. 1. Probability of voting for Trump by political engagement on social media in 2016, 2020, and 2024 from Model 1

Figure 1 shows the probability of voting for Donald Trump by each level of the political engagement variable – those who did not use social media, those who used it but did not engage with political content, and those who engaged with political content on social media – in 2016, 2020 and

2024. Across all respondents in the CES surveys, users who did not engage with political content on social media were less likely to vote for Trump in 2016 (31% chance of voting for Trump), compared to those who did not use social media (36%) or those who engaged with political content on social media (36.6%). The latter two categories of users were indistinguishable in their likelihood of supporting Mr. Trump in the 2016 presidential race. In 2020, however, we see a clear gradation among the three levels of social media engagement. Politically engaged social media users had the highest probability of voting for Trump (45.1%), followed by non-users of social media (42.5%), and then by users who did not engage with political content (40%). In 2024, we see yet another pattern. The gap between politically engaged users and non-users of social media increases further, whereas there is no statistically significant difference between politically inactive social media users and those who did not use social media at all. In the 2024 race, politically engaged users had 46.73% probability of voting for Trump, those who did not engage with such content had a 39.6% chance of voting for Trump, while those did not use social media at all had a 41.5% chance.

Table 4. Difference in probability of voting for Trump by political engagement on social media, split by race and election year

Race	Year	No Political Engagement on Social Media	Politically Engaged on Social Media
All Respondents	2016	-5.63*** (0.84)	-0.68 (0.58)
	2020	-2.52*** (0.69)	2.56*** (0.61)
	2024	-1.90 (0.90)	5.22*** (0.81)
Asian	2016	0.88 (4.28)	2.44 (3.17)
	2020	-3.94 (3.84)	4.49 (3.28)
	2024	1.20 (4.93)	9.95** (4.14)
Black	2016	-9.12 (4.84)	-1.70 (3.14)
	2020	-5.61* (2.45)	2.15 (2.27)
	2024	-7.24* (3.05)	6.25* (2.66)
Hispanic	2016	-13.36*** (3.57)	-5.92* (2.52)
	2020	-2.13 (2.68)	7.63** (2.25)
	2024	1.10 (3.56)	5.97 (3.17)
White	2016	-5.20*** (0.97)	-0.34 (0.67)
	2020	-2.51** (0.87)	2.01** (0.76)
	2024	-1.83 (1.08)	4.91*** (0.97)

Notes: Baseline category is respondents who **do not use social media**.
Values are percentage point differences. Stars: * $p < .10$, ** $p < .05$, *** $p < .01$ (p-values multiplied by 6 to account for Bonferroni correction).

Table 4 tracks these differences with the corresponding level of statistical significance indicated. We used a Bonferroni correction factor of 6 for each group of users listed in table 4 – all respondents, Asian Americans, Black Americans, Hispanic Americans, and White Americans – as there were six comparisons for each of them. This includes two contrasts measured per year for a total of 3 years for every group of respondents.

To validate hypothesis 1, we measure the difference in the probability of voting for Trump between social media users who engaged with political content and those who did not. Figure 2 shows the marginal contrast i.e. difference in probability of voting for Trump in each election year, depending on the user's political engagement on social media. We see that in 2016, politically engaged social media users were 4.96% points more likely to vote for Trump. In 2020, this difference was 5.08% points, whereas in 2024 it rose to 7.12% points. Given that the difference is statistically significant for each year (p-value < 0.001), we have validated hypothesis 1.

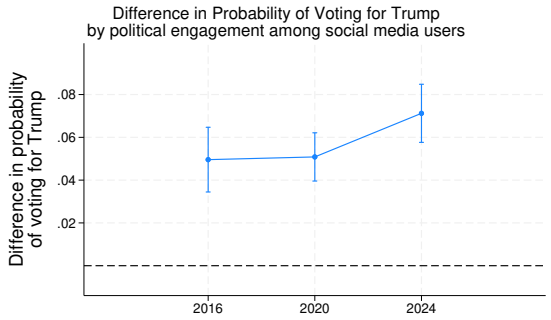

Fig. 2. Validation of hypothesis 1 shows that politically engaged social media users were significantly more likely to vote for President Trump than those who did not engage with such content on social media. The gap was higher in 2024 than in 2016 and 2020.

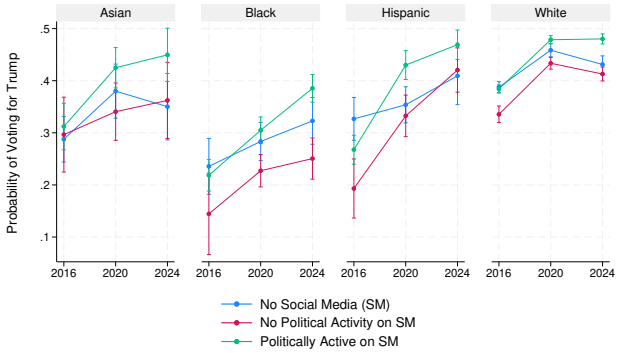

Fig. 3. Probability of voting for Trump by political engagement on social media, splits by race in 2016, 2020, and 2024 from Model 1

Racial Heterogeneity in Voting Behavior. Figure 3 shows how the relationship between political engagement on social media and voting for Trump varies among the four largest racial groups in the US – Asian, Black, Hispanic, and White Americans. We track the difference by level of political engagement for each election cycle. Table 4 shows the statistical significance of this relationship for each racial group in every election year. We observe that, among Asian Americans, political engagement had no significant relationship with voting for Trump in 2016 and 2020. However, in 2024, social media users who engaged with political content were 9.95% points more likely to vote for Trump than those who did not use social media. Among Black respondents, compared to the baseline, social media users who did not engage with political content were less likely to vote for Trump in 2020 and 2024. In 2024, Black users of social

media who engaged with political content were 6.25% points more likely to vote for Trump than non-users of social media. Among Hispanic Americans, we see a different pattern. In 2016, Hispanic Americans who used social media were less likely to vote for Trump compared to those who used social media, regardless of political engagement. However, in 2020, politically engaged Hispanic American social media users had the highest probability of voting for Trump (7.63% points more than the baseline). Finally, among White Americans, political engagement had no significant relationship with voting for Trump in 2016, but was positively correlated with the same in 2020 (+2.01pp) and 2024 (+4.91pp).

Modes of Political Engagement and Voting Behavior. Research questions `RQ2A` and `RQ2B` explore the relationship between individual modes of political engagement on social media and voting behavior in the 2016, 2020, and 2024 presidential elections. Notably, this analysis only includes respondents who used social media. Figure 4 shows the difference in probability of voting for Trump based on each mode of engagement, measured using marginal contrasts from model 2. For instance, in 2024, social media users who read a post about politics were 3.6 percentage points more likely to support Trump than those who did not read a political post on social media.

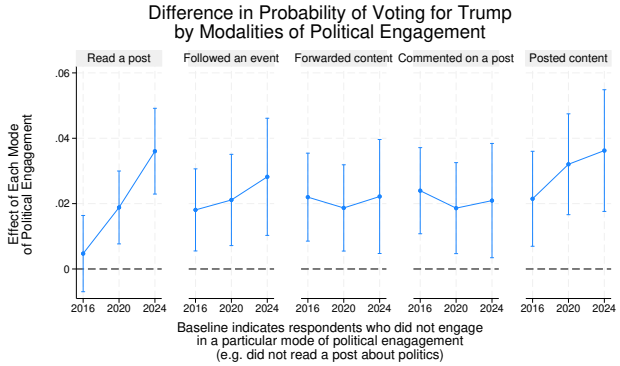

Fig. 4. Probability of voting for Trump by modes of political engagement on social media in 2016, 2020, and 2024 from Model 2

In 2016, reading a political post on social media was not associated with presidential voting behavior, but users who followed a political event were 1.5% points more likely to vote for Trump, and users who forwarded political content on social media were 2.2% points more likely to support Trump. Moreover, posting comments about politics was also positively correlated with Trump support (+2.40% points), as was posting content about politics (+2.15% points). In 2020, all modalities were positively correlated with support for Trump – reading a post (+1.88pp), following an event (+2.11pp), forwarding political content (+1.87pp), commenting about politics (+1.86pp), and posting original political content (+3.20pp). Likewise, in 2024, reading a political post (+3.6pp), following an event (+2.82pp), and posting original content (+3.62pp) had a statistically significant relationship with voting for Trump. However, forwarding a post or commenting about politics were not linked to voting for Trump. We used a Bonferroni correction factor of 15 for the 3 x 5 grid we used to measure contrasts for model 2.

Next, we consider the temporal change in the relationship between modes of political engagement and support for Mr. Trump. We used a difference-in-difference approach to measure the year-on-year change in this relationship, using the 2016 estimates as the baseline. We find that users who read political content on social media were significantly more likely to vote for Mr. Trump in 2024 than they were in 2016. No other mode of engagement shows a significant temporal change in its probability of Trump support.

Discussion

Our analysis reveals consistent and positive associations between various forms of political engagement on social media and the preference for voting for Donald Trump in 2016, 2020, and 2024. This finding, which holds even after controlling for demographic and partisan factors, supports our primary hypothesis and contributes to a growing body of evidence on the potent role of social media in shaping contemporary political behavior (40). Racial identities significantly moderate the relationship between online political engagement and voting behavior, with the impact varying across different groups and evolving over time. In this section, we elaborate on the theoretical mechanisms that can explain why these patterns emerged; we draw from the literature on political communication, social psychology, and network science (41) and propose that the observed associations result from a confluence of reinforcing mechanisms of social media's architecture and the nature of populist campaigns.

One primary mechanism of social media's influence on voting behavior is the creation of ideologically homogeneous online environments, often referred to as "echo chambers" or "filter bubbles" (11, 42) that reinforce attitudes and their intensity. Social media platforms, through their algorithmic content curation, tend to show users content that aligns with their previous engagement patterns (43). This, combined with individuals' natural tendency toward homophily—connecting with like-minded others—can insulate users from divergent viewpoints (21). Within these digital spaces, pro-Trump narratives, whether originating from the candidate himself, affiliated media, or fellow supporters, are amplified and reinforced (42). Constant exposure to ideologically congruent information can strengthen partisan identity, increase attitude intensity, and make the act of voting for the in-group's preferred candidate seem not only natural but necessary (44). Our finding that even passive forms of engagement, such as reading political posts, are associated with support for Trump is consistent with this explanation. Mere immersion in a pro-Trump information ecosystem can be a powerful force for persuasion and mobilization (26**?**).

When users were shown content that was ideologically opposed to their beliefs, Republicans were more likely to react negatively and further entrench their beliefs, while Democrats did not change their views significantly. This suggests that Mr. Trump's supporters were more susceptible to affective polarization — the tendency of individuals to feel more negatively toward the opposing political party (45). Affective polarization is a reinforcing spiral: individuals may have an initial susceptibility that is triggered by social media to produce a polarized outcome, which then functions as a mechanism to instigate voting behavior.

Furthermore, political content on social media, particularly content related to a polarizing figure like Donald Trump, is often emotionally charged, framing political opponents not just as wrong, but as immoral or dangerous (**?**). Engagement with emotionally charged content can intensify feelings of animosity towards the out-group and strengthen feelings of solidarity with the in-group (46). This heightened emotional state can be a powerful motivator for political action, including voting, as a means of defending one's group and defeating the opposition (47). The interactive nature of social media, where users can see their friends and social connections expressing similar outrage or enthusiasm, further validates and amplifies these affective responses (48).

Another key mechanism is the 'gateway' function of social media engagement (7). Platforms lower the barrier to political participation by offering a spectrum of low-cost, expressive activities, such as liking, sharing, or commenting (6). While these actions may seem trivial in isolation, they serve as initial steps on a ladder of political engagement (**?**), easing the path to develop and perform a political identity (**?**). Engaging in these low-interaction activities can increase individuals' sense of political efficacy and make them more receptive to calls for higher-cost participation, such as attending a rally, donating money, or casting a vote (7). The habitual nature of social media use reinforces this process; daily, repeated engagement with political content keeps users mobilized and connected to the campaign's narrative (49). That such mechanisms are structurally beneficial to Mr. Trump, but not to the Democratic party, is an interesting finding.

The last structural mechanism of social media we suggest is at play is political actors' ability to use social media to bypass traditional media gatekeepers and communicate directly with their supporters (14, 50). This dis-intermediated communication style is a hallmark of modern populism, enabling leaders to cultivate a sense of authenticity and a direct, personal connection with their base (13, 14). Through platforms like Twitter, Trump was able to rally his supporters and attack his opponents in real-time, creating a continuous, interactive campaign that traditional media struggled to keep pace with.

This direct channel also facilitates the rapid spread of information and, critically, misinformation that is favorable to the campaign (9, 12). Research on the 2016 election, for example, found that false news was widely shared, disproportionately favored Donald Trump, and potentially influencing voting decisions (51). The engagement we observe in our data is, in part, engagement with this unique and powerful communication apparatus (**?**). Our study does not consider the content people engaged with on social media and cannot address a potential relationship between support for Mr. Trump with misinformation.

TKTK

Racial identities significantly moderate the relationship between online political engagement and voting behavior. The specific impacts impact vary across different groups and evolve over time. For instance, the relationship between online activity and voting for Trump among Asian Americans saw a dramatic shift between election cycles. In 2024, politically engaged Asian American users were more likely to vote for Trump than those who did not use social media at all. The racial heterogeneity observed suggests that social media's echo chambers, dis-intermediated nature, and emotional impacts do not operate uniformly across all demographic groups (52). For instance, the experience of being in a political echo chamber, or the emotional impact of certain types of political messaging, may differ significantly for White, Black, or Hispanic voters (53). Future work should employ qualitative or mixed-methods approaches to explore the lived experience of political engagement on social media across different communities, and experimental designs to more precisely isolate the causal effects of these various mechanisms (**?**).

In conclusion, our findings underscore the profound impact of social media on the American electorate (**?**). The positive association between online political engagement and support for Donald Trump is best understood through a multi-faceted theoretical lens that accounts for the technological affordances of platforms, the psychological dynamics of group identity, and the communication strategies of populist leaders (**?**). Understanding these mechanisms is crucial for navigating the challenges and opportunities of democratic life in the digital age (54).

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A. Contrast Tables

Table 5. Year-to-Year Contrasts in Social Media Political Engagement by Race

Race	Social Media Use	2020 vs 2016	2024 vs 2020
Asian	No Social Media use	0.092**	-0.030
		(0.03)	(0.04)
	No Political Engagement on SM	0.044	0.022
		(0.05)	(0.05)
	Politically Engaged on SM	0.113***	0.025
		(0.03)	(0.03)
Black	No Social Media use	0.048	0.040
		(0.03)	(0.03)
	No Political Engagement on SM	0.083	0.023
		(0.04)	(0.03)
	Politically Engaged on SM	0.086***	0.081***
		(0.02)	(0.02)
Hispanic	No Social Media use	0.027	0.056
		(0.03)	(0.03)
	No Political Engagement on SM	0.139***	0.088**
		(0.04)	(0.03)
	Politically Engaged on SM	0.162***	0.039
		(0.02)	(0.02)
White	No Social Media use	0.071***	-0.027**
		(0.01)	(0.01)
	No Political Engagement on SM	0.098***	-0.021*
		(0.01)	(0.01)
	Politically Engaged on SM	0.095***	0.002
		(0.01)	(0.01)

Note: Entries are contrasts with standard errors in parentheses.
Significance levels (adjusted for multiple testing with Bonferroni, $p \times 6$): $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.