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Does Facebook increase political participation? Evidence from a field experiment

Yannis Theocharis^a and Will Lowe^b

^aMannheim Centre for European Social Research, Mannheim, Germany; ^bDepartment of Politics, Princeton University, Princeton, NJ, USA

ABSTRACT

During the last decade, much of political behaviour research has come to be concerned with the impact of the Internet, and more recently social networking sites such as Facebook, on political and civic participation. Although existing research generally finds a modestly positive relationship between social media use and offline and online participation, the majority of contributions rely on cross-sectional data, so the causal impact of social media use remains unclear. The present study examines how Facebook use influences reported political participation using an experiment. We recruited young Greek participants without a Facebook account and randomly assigned a subset to create and maintain a Facebook account for a year. In this paper we examine the effect of having a Facebook account on diverse modes of online and offline participation after six months. We find that maintaining a Facebook account had clearly negative consequences on reports of offline and online forms of political and civic participation.

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Introduction

During the last decade, much political behaviour literature has considered the impact of new communication technologies, especially social media such as Facebook and Twitter, on political participation. Many researchers have hoped that as worldwide Internet access broadens, these technologies will help re-engage citizens in the democratic processes (Dalton, 2008; Norris, 2002), for example, by implementing more direct e-democracy through online plebiscites, and by creating a virtual public sphere through online consultations (Coleman & Blumler, 2009). New Internet technologies would complement social capital (Wellman, Haase, Witte, & Hampton, 2001), affect cultural values (Norris, 2001), and enhance citizen engagement with politics (Barber, 1999; Etzioni, 1993).

In particular, the heavily digital media-based presidential campaign of Barack Obama in 2008 was promoted as a remedy not only for declining engagement with electoral politics, but also for the participatory decline that characterizes direct action groups (Earl & Kimport, 2011). Social media use would, it was argued, lower transaction costs by removing obstacles to participation, generate new and more efficient forms of bottom-up organization and coordination, and create new forms of participation to complement the

existing repertoires (Bennett & Segerberg, 2013; Bimber, Flanagin, & Stohl, 2005; Van Laer & Van Aelst, 2010). This argument gained further support from the important mobilizing role that social media played in the Arab Spring and Occupy events (Howard & Hussain, 2013; Lynch, 2011; Shirky, 2011; Theocharis, Lowe, van Deth, & García-Albacete, 2015; Tufekci & Wilson, 2012).

Much research has been devoted to investigating the relationship between Internet use and political participation both before and since the arrival of social media. In general results have been positive; a meta-analysis examining the Internet's effects on political participation has found weak or modestly positive relationships between Internet use and offline political participation under a range of operationalizations in cross-sectional observational data (Boulianne, 2009). More recently, scholars have placed greater emphasis on the mobilizing role of popular social media platforms, such as Facebook, on offline political participation, while a number of studies have tried to tackle causal questions through the use of panel data (Dimitrova, Shehata, Stromback, & Nord, 2014; Holt, Shehata, Stromback, & Ljungberg, 2013; Kahne, Lee, & Freezel, 2013). The results have generally been mixed with some studies finding no effects, other studies findings positive effects, and still others finding effects only on civic but not on political participation (Theocharis & Quintelier, 2015). As a recent meta-analysis by Boulianne concludes, 'the metadata demonstrate a positive relationship between social media use and participation (Boulianne, 2015, p. 524). More than 80% of coefficients are positive.' 'However', the author notes, 'questions remain about whether the relationship is causal and transformative. Only half of the coefficients were statistically significant. Studies using panel data are less likely to report positive and statistically significant coefficients between social media use and participation, compared to cross-sectional surveys' (Boulianne, 2015, p. 524). Importantly, Boulianne also notes that 'In terms of causal effects, few studies employ panel data and none of the studies employ an experimental design, which would help establish causality' (Boulianne, 2015, p. 534).

Aiming to provide firmer evidence about social media's effects on participation, this study adopts an experimental approach. It tests the relationship between Facebook use and mobilization in a survey setting in which possession and maintenance of a Facebook account were randomly assigned, and examined its effect on reported online and offline political participation after six months. Taking into consideration recent research suggesting that, in addition to ownership of a social media account the *type* of social media use may decisively affect subsequent online or offline participation (Bachmann & de Zuniga, 2013; Gil de Zuniga & Valenzuela, 2010; Holt et al., 2013; Tang & Lee, 2013; Towner, 2013; Valenzuela, 2013; Xenos, Vromen, & Loader, 2014), we also present findings showing how intensity of Facebook use, embeddedness in online networks, and civic use of Facebook affected online and offline participation patterns of the treatment group participants. From the literature we expected that Facebook use would increase both online and offline engagement. We also expected that intensity of Facebook use, greater number of friends, being exposed to mobilizing information, and interacting with political content posted by friends on Facebook would be positively related to political and civic participation. However, we find that, in this population, Facebook use leads to a substantial decline in reported civic and political participation. Our post hoc analysis on the treatment group shows a similar story, with the most common (Facebook-related) antecedents of participation being negatively correlated with all forms examined in the

study. As the study was conducted in Greece during one of the most turbulent periods (socially, politically, and economically) in its recent history (and thus in a context very different from the one most other relevant studies have been carried out), we argue that the political context may have played a critical role in the way Facebook affected participatory patterns. To this end, we offer possible explanations, including that, rather than being used as a tool for mobilization, Facebook was mostly used as a tool for entertainment and distraction from the dire situation in which the vast majority of Greeks found themselves in, or as a tool for further disillusionment from politics prompting disconnection from the political arena. In what follows we review the literature on social media's impact on political participation, outline our expectations, and state our hypotheses. We then elaborate on our research design, data collection and measures, and present our results. The article concludes with a discussion of the findings and their implications.

Political participation, the Internet, and social media

Much research on political participation in the last decade has shown an increasing detachment of citizens of Western countries from politics (Dalton & Wattenberg, 2000; Putnam, 2000). Amidst pessimistic approaches about the future of representative democracy, the role of the Internet in affecting participatory behaviour has become central in political participation debates. The literature reports mostly positive relationships between Internet use and different forms of civic and political participation (Bakker & de Vreese, 2011; Bimber, 2001; Mossberger, Tolbert, & McNeal, 2008; Quintelier & Vissers, 2008; Shah, Cho, Eveland, & Kwak, 2005; Valenzuela, 2013; Valenzuela, Park, & Kee, 2009; Xenos & Moy, 2007). Indicatively, the Internet's positive influence on political participation has been demonstrated by a meta-analysis which, examining a total of 38 studies with 166 effects, found that positive effects significantly outnumbered negative ones (Boulianne, 2009). However, scholars have been reluctant to draw firm conclusions about the Internet's mobilizing potential. Not only have many of the relationships these studies have revealed been too weak and drawn from convenience samples, but they have also been overwhelmingly tackled with cross-sectional survey data which render the causal mechanisms unclear. Moreover, most of these studies have demonstrated similar participatory inequalities as those already in place offline (Schlozman, Verba, & Brady, 2012; Xenos & Moy, 2007), providing support to the so-called reinforcement theories that saw the Internet as a tool that will mainly empower those already politically engaged (Norris, 2001). Still, the fact that research examining the Internet's impact on political participation in the less-interactive pre-Web 2.0 era, has produced a generally hopeful picture about the mobilizing effects of general Internet use, and strengthened hopes about the respective potential of the more interactive social media platforms.

The rise of Web 2.0 and specifically social networking sites brought more opportunities for mobilization through their capacity to support the widespread diffusion of (political) information across diverse networks of individuals. In addition, the radical lowering of opportunity costs for engaging with politics led to the widespread adoption of diverse online repertoires (Smith, 2013). This has led to various conceptual difficulties as there is no consensus with regard to whether such acts can be legitimately considered as

modes of political participation (see the discussion in Theocharis, 2015). One of the most important issues in the literature has thus been the investigation of the mode of online or offline participation influenced by the Internet. Oser and colleagues (Oser, Hooghe, & Marien, 2013) have found that online activism is itself a distinctive type of political participation. In a different study, Cantijoch (Cantijoch, 2012) found that Internet use may not have an impact on all modes of political participation, with the use of the Internet more frequently leading to an increased likelihood to become active in political protest. Other researchers have also found that there are not only distinct modes of online participation that are comparable to classic traditional offline repertoires, but also other, more expressive social media-based and online-only activities that lack an offline equivalent (Gibson & Cantijoch, 2013; Hirzalla & Van Zoonen, 2010).

Research on social media's effects has generally moved beyond the examination of the Internet as a uniform platform which can either mobilize or reinforce participation (Norris, 2001), placing more emphasis, and indeed discovering, that the type of use (Bond et al., 2012; Gil de Zuniga & Valenzuela, 2010; Towner, 2013; Tang & Lee, 2013), and even the platform (Bachmann & de Zuniga, 2013), matters for political mobilization. In an experiment with 61 million people, Bond and colleagues (Bond et al., 2012) found that, on Facebook, mobilization messages sent in social contexts (posted, for example, by friends or friends of friends) can influence political self-expression, information seeking, and even voting. Rojas and Puig-i-Abril found that informational uses of information and communication technologies (ICTs) (including social media) are significantly related to expressive participation online, which 'in turn results to a host of traditional or offline civic and political participatory behaviors indirectly through mobilization efforts' (Rojas & Puig-I-Abril, 2009, p. 902). Gil de Zuniga and Valenzuela (2010) also showed that network size and conversations with weak ties online are strong predictors of civic behaviours. Facebook combines many of the mechanisms by which online activity has been theorized to affect mobilization, such as lowering the cost of participation and making engagement with, and commitment to, causes easier and more flexible (Bimber et al., 2005; Earl & Kimport, 2011; Shirky, 2008); improving political knowledge by allowing constant access to a wider range of news media (Chaffee & Frank, 1996; Scheufele, 2002); building and maintaining of social capital by establishing new bridges among people, and strengthening existing offline relationships (Ellison, Steinfield, & Lampe, 2007; Gil de Zuniga & Valenzuela, 2010); and enabling individuals to develop the norms of trust and reciprocity that are necessary for effective participation in public life (Kittilson & Dalton, 2011).

Facebook's mobilizing potential

Facebook is predominantly a social networking site aimed at fulfilling social and entertainment purposes. A number of studies have shown that it can satisfy people's entertainment and recreation needs (Ekstrom & Östman, 2013; Kahne et al., 2013), enabling them to join groups and events related to their personal interests and hobbies, upload their photos and videos, comment on, and chat with their friends. However, Facebook has various embedded features that can make it a suitable venue for the development of political attitudes and behaviours even to those politically uninterested or unaffiliated. The most important of those is the News Feed timeline feature. Facebook's timeline structure

exposes users to a mixed information environment ranging from sports, movies, gossip, music, and so on. This is important for the kind of ‘by-product’ learning mechanism, which Chadwick, quoting Downs (Downs, 1957), argues can ‘soften informational inequalities between social groups, ensure broad popular awareness of key political events and, most crucially, spur us to act on that knowledge, come election day’ (Chadwick, 2012, p. 41). Facebook is an ideal medium for fulfilling users’ informational needs in this fashion. Its integrated News Feed exposes, unintentionally or not,¹ users to news sources, (political) opinions, and potentially mobilizing information about political events posted by friends. Early research has found that opinion expression and conversation about political affairs can lead to mobilization and engagement in political activities (Katz & Lazarsfeld, 1955; Lazarsfeld, Berelson, & Gaudet, 1944). Recent studies (Baum, 2003; Morris & Morris, 2013; Tewksbury, Weaver, & Maddex, 2001) have corroborated the involuntary learning effects of mass media and particularly the Internet. Moreover, despite relying on a convenience sample of university students, a recent study on the effects of Facebook on participation has also confirmed that offline political participation is prominently explained by exposure to shared political information on Facebook (Tang & Lee, 2013). What is more, recent studies have also confirmed that the Internet – and especially social media – is likely to trigger online political talk which is as conducive to political engagement as interpersonal discussion (Gil de Zuniga & Valenzuela, 2010; Jung, Kim, & Gil de Zúñiga, 2011; Rojas & Puig-I-Abril, 2009; Shah et al., 2005; Tewksbury et al., 2001). Based on these insights, it becomes apparent that use of Facebook may, by virtue of the platform’s own socialization logic and the embedded functions promoting it (e.g., liking, commenting, sharing, and starting a group), allow for the emergence of different uses that can lead to different modes of participation.

Examining the impact of Facebook use on participation, several studies have generally reported positive effects. A recent study by Enjolras, Steen-Johnsen, and Wollebaek (2013) found that, in a protest context, links with information structures on social media exert a strong and independent effect on political mobilization. Recent studies using panel data have found support that Facebook can lead to increased political activity (Dimitrova et al., 2014; Holt et al., 2013), especially when they are used for political news and visiting political content such as presidential candidates’ Facebook websites. It needs to be noted, however, that these studies were conducted during election times and thus in periods during which both interest in, and attention to, news are heightened (Delli Carpini & Keeter, 1997). As is the case with the literature exploring the Internet’s effect during the pre-Web 2.0 era, however, not all research findings reveal positive effects. Zhang, Johnson, Seltzer, and Bichard (2009), who looked specifically on the impact of social media, found that despite that their use was significantly related to increased civic participation, there was no relationship with political participation, a result corroborated by a recent study using panel data (Theocharis & Quintelier, 2015). Moreover, Baumgartner and Morris (2010), contrary to what other studies have shown, found that those who rely on social media for news were not more likely to participate in politics by traditional means. Extant research, thus, provides inconclusive findings about the effect of Facebook on various forms of participation, while notable is the small number of studies using longitudinal or experimental designs to provide firmer support about the direction of causality (Boulianne, 2015).

Field experiments as a method for tackling Facebook's effects on participation

There is much ambivalence surrounding the direction of causality when it comes to Facebook's effects on different modes of participation. Nearly all studies presenting positive relationships between Facebook use and participation are cross-sectional, so it is hard to rule out the possibility of confounding factors that affect social media use and participation. We note that past experimental studies on the effects of Facebook on political participation do not address this issue directly (Bond et al., 2012). Bond and colleagues looked at mobilization of existing Facebook users, whereas we follow a different path. Rather than studying the effect of political information seen by already existing Facebook users, we consider the effects of bringing people onto the Facebook platform by recruiting people who did not have a Facebook account at all. If people not already using the platform have a distinct profile of political participation from those who select onto it, then we will identify a different causal effect that does not necessarily originate in the information exposure mechanism explored by Bond and colleagues.

Against this background and especially considering the interactive and participatory (even if only expressive) possibilities that emerge through social connections once one creates a Facebook account, we expected that creating a Facebook account would lead to an increase in one's participation when compared with someone who does not have an account. As this is an experimental study with the aim of testing the independent effect of having a Facebook account on participation, we do not speculate about how the types of uses of Facebook that people may adopt after acquiring a Facebook account affect participation (although, in our post hoc analysis, we do take into consideration how different aspects of Facebook use that have proved influential in past research, such as intensity, network embeddedness, and political use, may be affecting the treatment group's participation patterns). Rather, by randomizing ownership of Facebook account, we are interested in whether ownership and maintenance of such an account (which presumably, if maintained, will involve typical uses that other research has shown to be influential) are causally related to more participation.

Given findings by extant research showing that online mobilization can be medium specific (Best & Krueger, 2005; Vissers, Hooghe, Stolle, & Maheo, 2011) and that online participation is itself a distinct form of participation (Oser et al., 2013), we expect that Facebook use will lead to more online political participation. Based on recent research on social media's impact on extra-institutional participation (Cantijoch, 2012; Valenzuela, 2013), we also expect that Facebook's effect would be more pronounced on forms of extra-institutional rather than traditional forms of participation. Finally, as extant research supports that the more open and collaborative online culture that social media allow for is more conducive to engagement in civic activities (Bennett, 2012; Kahne et al., 2013; Pasek, More, & Romer, 2009), we expect Facebook use will lead to more civic engagement. In hypothesis form:

Hypothesis 1 (H1): Use of Facebook leads to more offline participation (traditional, civic, and extra-institutional) and therefore Facebook users will report higher offline participation than non-Facebook users.

Hypothesis 2 (H2): Use of Facebook leads to more online participation and therefore Facebook users will report higher online participation than non-Facebook users.

Method and measures

Case selection

The data reported in this study were collected in Greece in 2011, a period of widespread social turbulence, as well as unprecedented political instability due to the debt crisis. Greek citizens' strong reaction to austerity packages led to the organization of mass demonstrations and strikes, occupations of public institutions, widespread civil disobedience, and vibrant Internet activism. The chosen period is thus of particular significance and relevance to the subject of research. This is not only because of the intense social turbulence in Greece during that period due to the peak of the financial crisis, but also because it was the period leading up to what ended up to be two consecutive elections in less than two months. Unsurprisingly, given how unpopular political parties – and virtually anything that had to do with politics – were at the time, these elections saw by far the lowest electoral turnout Greece had seen for more than 50 years. Given how critical these elections were,² this implied not only an increased overall mediation of political issues and positions through every communication channel available – with social media thought to be a major avenue for mass mobilization (Henley, 2012; Kathimerini, 2011), but also a period in which higher involvement with, and exposure to, political issues was to be expected (Delli Carpini & Keeter, 1996). Increased involvement and exposure to such a vibrant and polarized discussion, however, may also have resulted in further disillusionment and even disconnect with politics. The low electoral turnout and the striking rise of protest activity during the entire duration of the study certainly point towards that direction and open the door for context-based interpretations of the study's findings. Despite presenting an unusual context, and given the rise of social media-enabled political activity since then, we perceive this time-frame as very important for the aims of this study which sought to test Facebook's impact on political behaviour because the circumstances and news reports imply intense use of social media platforms for engagement with politics.

Method of recruitment and sampling

Between October 2011 and 2012, we commissioned a reputable independent Greek research agency to recruit 200 people aged 18–35 years (50% female, 50% male), who did not have a Facebook account.³ The participants were recruited using random digit dialing from Patras – the third largest urban area in Greece – and were contacted from 1 to 6 September 2011 and 1 to 6 March 2012.

After asking the screening questions regarding the participants' age and whether they had a Facebook account, the survey operators proceeded with the survey and, at the end, asked the participants whether they would be interested in participating further. Specifically, the survey operator asked the participants whether, in exchange for a gift voucher from a popular electronics shop, they were willing to create and maintain a Facebook account for a year, responding to a similar telephone interview six months after that call. If the participant accepted, the operator took the participant's details, randomly assigned them into the treatment ($n = 120$) or control ($n = 80$)⁴ group, and asked to be notified of the treatment group participants' newly created profile on Facebook through a Facebook message within two weeks. To ensure that participants would create and maintain a profile on Facebook, the agency sent the voucher details to the participants' newly

created Facebook profiles after the participants communicated to the agency through these profiles. This was also the way in which the initial (prior to the telephone interview) subsequent communication with the survey participants took place for the follow-up interview call. In this way, we ensured that the treatment group was using their account. Intensity and type of use made of the Facebook account were measured through a number of questions about intensity, number of friends acquired, and more (see below section on variables used in *post hoc* analysis). During the course of the experiment two control group members reported opening an account. They are excluded from this analysis.

In this study we focus on the effect of having a Facebook account on participation at the second contact point when our respondents have maintained an account for six months, using all respondents who completed Wave 2 and complied with the instructions (197 of 200; one dropout and two non-compliers). We do not have strong expectations about the time course of the mobilization effects we are studying – it is theoretically possible that effects on mobilization are cumulative and more time is required to show a complete effect, or that the effect appears and disappears on a very short timescale – however, we expect that six months should be long enough to see the effects of interest.

Political participation measures

We use the definition of political participation provided by Verba and colleagues (Verba, Scholzman, & Brady, 1995, p. 9), as an ‘activity that is intended to or has the consequence of affecting, either directly or indirectly, government action’. However, because different modes of political participation may not only be used by different people but may constitute distinct types of engagement with politics altogether (Cantijoch, 2012; Dalton, Van Sickle, & Weldon, 2009; Oser et al., 2013; Zukin, Keeter, Andolina, Jenkins, & Delli Carpini, 2006), we distinguish analytically between online, offline, traditional, civic, and extra-institutional modes of participation in addition to providing a combined measure.

We conceptualize offline political participation as having three components: traditional, extra-institutional, and civic participation. Traditional participation is participation directly attached to the electoral process. We measure this using the participation items developed by Verba and Nie (Verba & Nie, 1972) that ask respondents to what extent they engaged in the last twelve months in five predefined political activities. These include voting in national elections, persuading others to vote in election, working for a party or politician, raising funds for a political party and attending political meetings. These responses scale together (Mokken’s $H = 0.52$ (s.e. 0.061), Cronbach’s $\alpha = 0.52$), so we fit a binary Item Response Theory (IRT) model and use standardized point estimates from the posterior distribution of factor scores as our index.

We used IRT models because we want to model our Likert and binary items in a way that does not, like Factor Analysis, assume Normally distributed items, but does maintain Factor Analysis’ assumption of a continuous underlying factor and local item independence. Mokken’s H statistic allows us to test that levels of the items we think measure the same construct are monotonically related, that is, that they do form a scale. Having confirmed our items scale together, we fit generalized IRT models to maximize the information we can extract.⁵ One implication of using IRT models (or indeed Factor Analysis) is that our underlying constructs have no natural scale and so can be arbitrarily

normalized. We use this to present our results in standard deviations of responses, thereby abstracting away from the details of the binary, Likert, or other types of items we used.

We measure extra-institutional participation by asking respondents to what extent they engaged in the last twelve months in five predefined political activities (Barnes et al., 1979). These include working for a political action group, signing a petition, deliberately buying or avoiding buying certain products, participating in demonstrations, and donating money to causes. These items scale together (Mokken's $H = 0.44$ (0.047), Cronbach's $\alpha = 0.64$) and were measured using standardized factor scores from an IRT model, as described above.

We conceptualize civic participation as 'participation aimed at achieving a public good, but through direct hands-on work in cooperation with others, such as volunteer work in a community' (Zukin et al., 2006, p. 51) and measure it by asking respondents to what extent they engaged in the last 12 months in three predefined civic activities. These include working or volunteering for a community project, working or volunteering in a non-political group (e.g., hobby club or reforestation team), and raising money for, or participating in, charity activity (e.g., a charity marathon). The responses scale together (Mokken's $H = 0.52$ (0.047), Cronbach's $\alpha = 0.68$) and were measured by standardized factors scores from an IRT model.

There is no standard battery of questions measuring online political participation, but several scholars have attempted to construct suitable item sets (Bakker & de Vreese, 2011) and scales to measure online participation (Gibson & Cantijoch, 2013; Hirzalla & Van Zoonen, 2010). Following this work we operationalize online political participation using six predefined political activities. These include visiting the government's or a politician's website, reacting online to content posted by such a website, signing an online petition, visiting sites of political action groups, reacting online to content posted by such a website, and creating a blog or a social network group for political reasons. The responses were scaled as before to create a normalized measure of online participation (Mokken's $H = 0.47$ (0.063), Cronbach's $\alpha = 0.76$).

Treatment and control variables

The causal variable of interest is having and maintaining a Facebook account. Although this is randomized, sampling variation in our sample can generate covariate imbalance, so we perform our analysis controlling for a number of possibly confounding variables. These are the standard predictors of political participation from the literature: not only level of political interest and ideological self-placement on a left–right axis (Norris, 2002; Verba et al., 1995), but also post-materialist orientations (Inglehart, 1990) and membership in associations (Pharr & Putnam, 2000). We also include control for age, gender, and highest level of completed education. In an attempt to improve precision, we also include for each participation measure its pre-treatment value although our results are not sensitive to this choice. Most responses had a missingness rate of 6% or below, with the exceptions of 'did you vote in the last election' (16.1% missing), left–right ideology on a 0–10 point scale (15.8% missing), and income band (24% missing). All missing data were multiply imputed (using the Amelia II package (Honaker, King, & Blackwell, 2011)). Unless otherwise stated, all model results are constructed by combination from imputed data (Little & Rubin, 2002).

Variables used in the post hoc analysis

Taking into consideration findings from previous research, in our post hoc analysis we included several items that, within the context of social media, have been found to be influential for subsequent engagement in different types of participation. These included intensity of Facebook use (Xenos et al., 2014), measured through the item ‘approximately how much time do you spend on Facebook’ with possible answers ranging from ‘less than 10 minutes’ to ‘more than 3 hours’; network embeddedness (Gil de Zuniga & Valenzuela, 2010), which was measured through the item ‘approximately how many friends do you have on Facebook, with possible answers ranging from ‘less than 10’ to ‘more than 300’; exposure to potentially mobilizing information (Tang & Lee, 2013), which was measured through the item ‘please tell me how much you agree or disagree with the following statements: during the last six months I have read information on Facebook about social and political initiatives in which I would like to participate’ with possible answers ranging from ‘strongly agree’ to ‘strongly disagree’; and interaction, through discussion, of political content posted by friends on Facebook (Rojas & Puig-I-Abril, 2009), measured through item ‘During the last 6 months ... I have commented on friends’ posts of political nature on Facebook’.

Results

To estimate the effect of Facebook we ran *t*-tests comparing treatment to control group outcomes for each each participation measure (traditional, civic, extra-institutional, online, and a general participation measure) and linear regressions on treatment condition with control variables including the participant’s pre-treatment score on the response variable. Since treatment is randomly assigned we expect, and largely confirm, no significant relationships with the controls.

As a check on the robustness to functional form assumptions in the regression analysis, we additionally estimated an average treatment effect (ATE) via matching using propensity scores (Sekhon, 2011). We used one-to-one matching with a 0.1 standard deviation calliper to discard hard-to-match cases. This led to around 15 unmatched respondents for each participation variable. In the results tables below, the matching estimate ‘ATE’ should be compared to the regression treatment coefficient ‘Facebook’.

We do not report ATEs on the treatment (ATT) and control group (ATC) separately. These are not directly comparable to the regression coefficient on treatment (but provide substantively the same result) and, predictably, scarcely differ from the ATE due to the randomized design. It is important to note that our *research design* targets an ATC for the Greek population because our treatment assignment gives Facebook accounts to a random subset of subjects who do not already have them, but does not remove accounts from those who do, so it cannot provide information about ATE or ATT effects of Facebook directly. Nevertheless, in our *analysis* an ATE is appropriate.

We show matching results for one imputation rather than average models that are constructed from potentially different cases in each imputation. As far as we are aware, there is currently no standard methodological guidance for performing matching analyses on multiply imputed data. Standard errors and confidence intervals computation use the Abadie-Imbens method which takes into account variation due to matching (Abadie & Imbens, 2006).

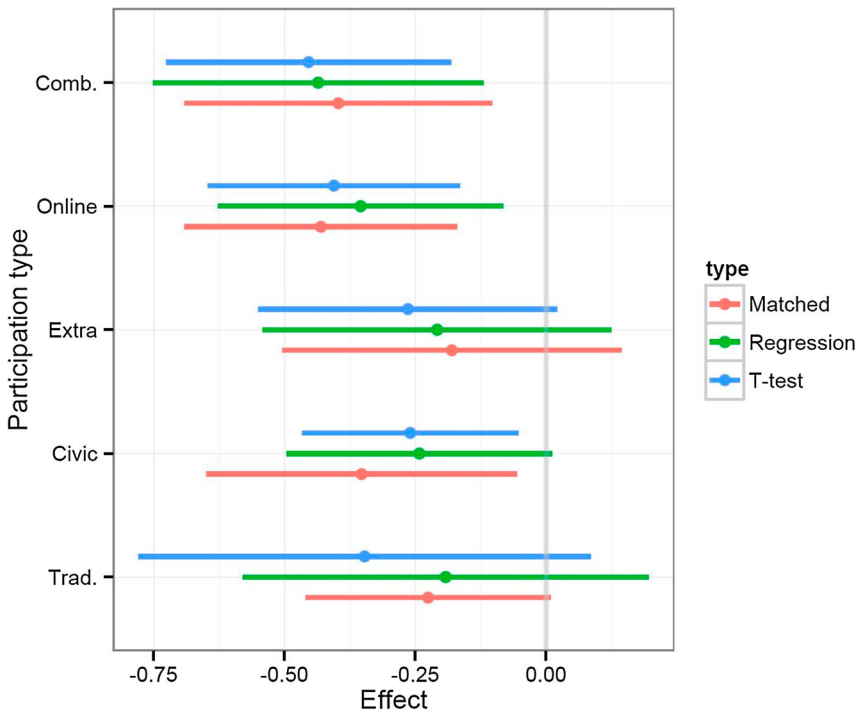


Figure 1. Estimated treatment effects by dependent variable for regression and matching analyses.

The regression and matching models results are shown graphically in Figure 1. Tables 1–3 show the effects of treatment on measures of reported participation. Dependent variables are unit-normalized so the treatment coefficients should be interpreted as effects in standard deviations of reported participation.⁶

The overall picture is straightforward: all point estimates of treatment effects are negative. In more detail, starting with offline forms of participation, the point estimate of the effect of Facebook is negative on both traditional and extra-institutional forms of political participation, though not significantly so, and we find no support for H2. This is surprising considering the large amount of studies that have demonstrated positive effects, even weak or modest ones. Civic engagement is the only offline participation variable upon which Facebook effects are statistically significant. This stands in marked contrast to Kahne et al. (2013) and Holt et al. (2013) positive findings which were also derived from panel data. Moving to online participation, our findings show the treatment has, again, a negative effect on online political participation.⁷

Table 3 shows the results for a combined, ‘general political participation’ variable constructed from scaled factor scores using both offline and online participation items. The findings are consistent with the previous models and predictably more precise. The overall message from the analysis is that acquisition and use of a Facebook account lead to lower levels of reported political and civic engagement.

What about the type of Facebook use? Previous empirical work has shown that it is actually the ways in which one uses Facebook that may result to more participation. As already discussed, four of the most prominent mobilization mechanisms were examined

Table 1. Models for offline participation modes.

	Traditional 0	Traditional 1	Traditional 2	Civic 0	Civic 1	Civic 2
Facebook	−0.347 (0.220)	−0.192 (0.198)		−0.259* (0.106)	−0.242 (0.129)	
ATE			−0.225 (0.119)			−0.352* (0.151)
Male		−0.069 (0.138)			0.096 (0.117)	
Age		0.006 (0.017)			−0.005 (0.012)	
Education: middle school		−0.615 (1.947)			0.180 (0.829)	
Education: high school		−1.661 (2.146)			0.525 0.755)	
Education: college		−1.818 (2.247)			0.321 (0.776)	
Education: bachelor’s		−1.691 (2.154)			0.445 (0.755)	
Education: master’s		−1.527 (2.141)			0.534 (0.798)	
Education: Ph.D.		−2.001 (2.466)			−0.401 (1.140)	
Ideology		−0.021 (0.029)			−0.016 (0.025)	
Post-materialism		0.033 (0.067)			−0.001 (0.052)	
Memberships		0.068 (0.062)			0.008 (0.055)	
Interest: not much		0.040 (0.175)			0.023 (0.146)	
Interest: some		−0.028 (0.171)			−0.089 (0.152)	
Interest: a lot		0.227 (0.274)			0.066 (0.217)	
Internet: 0.5–1 h		−0.052 (0.312)			−0.100 (0.188)	
Internet: 1–3 h		0.097 (0.316)			−0.055 (0.180)	
Internet: 3–5 h		−0.080 (0.282)			−0.169 (0.201)	
Internet: 5–7 h		−0.187 (0.373)			0.441 (0.375)	
Internet: 7 + h		0.286 (0.518)			0.002 (0.306)	
Trad. part. (lag)		−0.059 (0.077)				
Civic part. (lag)					0.098 (0.057)	
R ²	0.052	0.196		0.030	0.111	
Adj. R ²	0.047	0.100		0.025	0.005	
Num. obs.	197	197	197	197	197	197
Matched obs.			139			150

Notes: For each mode, model 0 is equivalent to a t-test of difference of means, model 1 is a linear regression, and model 2 is the ATE from a matching analysis using propensity scores.

*** $p < .001$.

** $p < .01$.

* $p < .05$.

in the treatment group. Table 4 offers a correlation between our main dependent variables and four independent variables used to measure intensity of use, size of Facebook network, exposure to mobilizing information, and using Facebook for political purposes. As can be seen in the Table, with the exception of using Facebook for political/civic purposes, all

Table 2. Models for offline and online modes.

	Extra-inst. 0	Extra-inst. 1	Extra-inst. 2	Online 0	Online 1	Online 2
Facebook	−0.264 (0.146)	−0.208 (0.170)		−0.405* (0.123)	−0.354* (0.139)	
ATE			−0.180 (0.165)			−0.430** (0.133)
Male		0.176 (0.156)			−0.127 (0.125)	
Age		−0.006 (0.016)			−0.007 (0.013)	
Education: middle school		−0.198 (1.132)			−0.746 (0.914)	
Education: high school		−0.425 (1.041)			1.935* (0.802)	
Education: college		−1.009 (1.071)			−1.907* (0.827)	
Education: bachelor's		−0.550 (1.038)			−1.955* (0.801)	
Education: master's		−0.577 (1.090)			−2.321** (0.844)	
Education: Ph.D.		0.569 (1.546)			−3.024* (1.205)	
Ideology		−0.006 (0.033)			0.017 (0.028)	
Postmaterialism		−0.052 (0.070)			−0.041 (0.058)	
Memberships		0.109 (0.073)			0.021 (0.057)	
Interest: not much		0.084 (0.197)			0.010 (0.162)	
Interest: some		0.103 (0.205)			0.142 (0.168)	
Interest: a lot		0.039 (0.294)			0.280 (0.234)	
Internet: 0.5–1 h		0.194 (0.258)			−0.147 (0.205)	
Internet: 1–3 h		0.237 (0.245)			−0.026 (0.201)	
Internet: 3–5 h		−0.078 (0.281)			−0.039 (0.234)	
Internet: 5–7h		0.457 (0.467)			0.219 (0.378)	
Internet: 7 + h		0.602 (0.387)			−0.175 (0.317)	
Extra inst. part. (lag)		0.076 (0.088)				
online part. (lag)					0.118 (0.063)	
R ²	0.017	0.131		0.058	0.212	
Adj. R ²	0.011	0.027		0.054	0.118	
Num. obs.	197	197	197	197	197	197
Matched obs.			152			154

Notes: For each mode, model 0 is equivalent to a t-test of difference of means, model 1 is a linear regression, and model 2 is the ATE from a matching analysis using propensity scores. Standard errors are in parentheses.

*** $p < 0.001$.

** $p < 0.01$.

* $p < 0.05$.

other variables are weakly negatively correlated with all forms of participation. Facebook network size and receiving mobilizing information on Facebook are both negatively and statistically significantly correlated with engaging in traditional acts. Facebook use for political/civic purposes is the only variable that is positively correlated with diverse forms of

Table 3. Models for all measures combined.

	Combined 0	Combined 1	Combined 2
Facebook	−0.454** (0.139)	−0.435** (0.161)	
ATE			−0.397** (0.150)
Male		0.157 (0.149)	
Age		−0.18 (0.015)	
Education: middle school		−0.334 (1.051)	
Education: high school		−1.051 (0.956)	
Education: college		−1.480 (0.981)	
Education: bachelor’s		−1.172 (0.955)	
Education: master’s		−1.267 (1.007)	
Education: phd		−0.984 (1.436)	
Ideology		0.010 (0.031)	
Post-materialism		−0.032 (0.067)	
Memberships		0.069 (0.071)	
Interest: not much		0.039 (0.187)	
Interest: some		0.024 (0.200)	
Interest: a lot		0.050 (0.293)	
Internet: 0.5–1h		−0.013 (0.246)	
Internet: 1–3h		0.045 (0.239)	
Internet: 3–5h		−0.205 (0.267)	
Internet: 5–7h		0.245 (0.438)	
Internet: 7 + h		0.339 (0.358)	
Combined part. (lag)		0.127 (0.095)	
R ²	0.054	0.168	
Adj. R ²	0.049	0.068	
Num. obs.	197	197	197
Matched obs.			148

Note: For each mode, model 0 is equivalent to a t-test of difference of means, model 1 is a linear regression, and model 2 is the ATE from a matching analysis using propensity scores. Standard errors are in parentheses.

*** $p < .001$.

** $p < .01$.

* $p < .05$.

engagement, and is statistically significantly correlated with traditional and online engagement. Although obviously no causal claims can be made based on this analysis, the effects generally complement the overall picture that acquiring a Facebook account offers little concrete participatory benefits.

Table 4. Correlation table of modes with attributes of the treated group.

	Traditional	Extra-inst.	Civic	Online	Combined	FB intens.	Network	FB mobil.
Extra-inst.	0.55***							
Civic	0.31***	0.40***						
Online	0.39***	0.34***	0.28**					
Combined	0.67***	0.89***	0.52***	0.55***				
FB intens.	-0.08	-0.02	-0.02	-0.13	-0.09			
Network	-0.19*	-0.15	-0.00	-0.15	-0.20*	0.49***		
FB mobil.	-0.20*	-0.14	0.02	-0.16	-0.15	0.36**	0.31*	
FB civic	0.11*	0.07	0.03	0.23**	0.14	0.09	0.05	0.04

*** $p < .001$.

** $p < .01$.

* $p < .05$.

Discussion

Our sense is that the hyperbole surrounding new Web developments (Web 2.0) as they relate to citizenship may be just that – hype. In fact, it is reminiscent of earlier hopes for “Web 1.0,” and before that, television, and even earlier developments in mass communications Technology. (Baumgartner & Morris, 2010, p. 38)

In one of the few studies finding no significant effects of social media use on political participation and political attributes such as political knowledge, Baumgartner and Morris urged for caution when interpreting the mobilizing potential of social media platforms such as Facebook. Our study intended to contribute to a better understanding of the causal relationship between digital media and participation, a question that has been at the forefront of the debate on the Internet’s potential since the medium was popularized in the late 1990s. Much of the Internet and politics literature has been concerned with the effect of digital media use on participation during the last decade, yielding altogether more positive than negative relationships (Boulianne, 2009) despite the lack of consistent measures (Gibson & Cantijoch, 2013). Yet, as many scholars have noted (Boulianne, 2009, 2015; Dimitrova et al., 2014; Kahne et al., 2013; Shah et al., 2005), panel data are better suited for tackling this causal question, and these have been in short supply.

Our study contributes to the debate providing evidence showing that the use of Facebook, by far the most popular social media platform with more than 1 billion users, has a clear negative effect on participation. The findings add scepticism about the potential of social networking sites to affect participation; Facebook use not only fails to influence engagement in a number of classic and widely used political and civic participation repertoires, but also affects them negatively. Perhaps the most troubling result in our study is the demonstration of a negative relationship in all forms of participation, rather than – as is usually argued – in offline high-cost forms of engagement. This should raise theoretical concerns that go beyond the saturated ‘slacktivism’ and ‘clicktivism’ debates abound in mainstream media (Gladwell, 2010; Morozov, 2009).

The starkness of our study’s counter-intuitive main finding invited us to search for explanations through more subtle paths that could convincingly explain it. What differentiates this study from studies that use panel data and find positive effects on political and civic engagement is not only that it was not conducted during an electoral campaign (Dimitrova et al., 2014; Holt et al., 2013), or with a sample of schoolchildren or adolescents (Theocharis et al., 2015; Kahne et al., 2013), but also that this study makes use of a randomized experimental design which requires people who do not have a Facebook

profile to create and make use of one. An important distinction was also the context in which the study took place. Indeed, as our findings echo early studies reporting the Internet as a tool that contributes to social isolation and further disengagement (Kraut et al., 1998; Nie & Erbring, 2000) due to the entertainment functions of the medium, we find that a convincing explanation may lie on Facebook's recreation and entertainment capacities.

A rival theory to the one that sees Facebook as a mobilizing factor for engagement is one that sees it as a demobilizing force whose functions distract the users' attention from politics. Although our data set did not include variables for testing this possibility, this is far from an exotic speculation. From Postman's dystopian warnings in *Amusing Ourselves to Death* (Postman, 1985) to Norris and Jones's (1998) concerns that recreational uses of the Internet may erode public involvement, the possibility of using the Internet purely as a method of distracting oneself has always been visible. That the situation in Greece during the time in which the study was conducted was challenging for most Greeks, and downright dire for many, reinforces the idea that Facebook may have been a way of escaping everyday struggles by disassociating oneself from, rather than engaging with, politics. Political communication literature has long emphasized that media can be a source of entertainment that offers moments of escapism from the struggles of daily life (Lazarsfeld & Merton, 1948). Empirical research has also supported this idea. In a study on the effects of East Germans' exposure to West German television on their support of the East German communist regime, Kern and Haimueller (2009) found evidence consistent with the theory that television was primarily used as a source for entertainment and distraction that made life under communism more bearable. It is thus plausible to suggest that, in the worst days of the crisis in Greece, Facebook played a similarly entertainment role in demobilizing rather than mobilizing the population.

There is also a different, and almost contrary, interpretation. One of the major characteristics of the time period in which the study was conducted was the strong polarization among the public opinion regarding the path the country should take. At the time of writing, Greece is undergoing a very similar and probably even more turbulent period during which the population, facing bank closures and capital controls, is fiercely divided over a referendum to approve or disapprove the international creditors' package of austerity measures. One of the most major concerns voiced in the mainstream media at the time – and consistently since – is the effect of polarization on social media which creates an incisive, uncivil, and often deleterious atmosphere, likened by the major Greek newspaper *Kathimerini* to a 'civil war' (Kathimerini, 2015). A number of studies has shown that incisive and uncivil discussions on social media have not only a negative effect on the attitudes and behaviours of those who engage in the discussion itself (Hwang, Borah, Namkoong, & Veenstra, 2008), but also a disillusioning effect to those who attend (Anderson, Brossard, Scheufele, Xenos, & Ladwig, 2013). With the discussion raging on Facebook, with accusations from both supporters and critics of the government, and with rows between friends and acquaintances at their peak, it is far from implausible that using the platform may have led to disaffection with politics. Such an explanation is also firmly grounded in existing literature. In a randomized experiment in which a subset of 'internet-less' people in Tanzania, prior to the presidential election were assigned to the 'internet use' treatment group which was given access to the Internet, Bailard (2012) found that the Internet influenced individuals' perception for the fairness of

the election negatively. We agree with Bailard's statement that the Internet's – and in our case Facebook's – effects may be heavily contextually dependent. This study's surprising results do not, thus, call only for a replication of our design in a different context, but also opens up a new and exciting avenue for further research on social media that takes contextual factors into greater consideration.

Putting aside the explanations of Facebook's negative effects, the main implication of this study is that increased caution should be exercised when it comes to statements and assumptions about the direction of causality that underlies the relationship between social media use and participation. This research underlines the need for more studies with longitudinal and experimental designs exploring the relationship between digital media and participation and the mechanisms of influence.

Finally, there are two limitations to the study: first, the sample size is relatively small. Thus, while we can be fairly confident of our general findings, we do not have sufficient precision to compare effect sizes for different participation measures. Second, while our items do scale together as predicted by theory and confirmed by Mokken's measures, they are not particularly strong. In particular, the weaker scales are those measuring offline participation, which may explain the imprecise results. If this is the case, we should not read too much into the non-significance of the relevant treatment coefficients; for all we know the effects may be as robustly negative as the online measures or unaffected by the manipulation. Another limitation of the experimental design is that we do not get information about the particular mechanisms that may be causing negative effects. This is a straightforward consequence of the randomized experimental design.

Notes

1. According to a recent study by the PEW Internet and American Life Project, only 4% of social media users block, unfriend, or hide someone because they disagreed with something they posted about politics (http://pewinternet.org/~media/Files/Reports/2012/PIP_SNS_and_politics.pdf).
2. Many analysts argued that the result of that election would define whether the country went bankrupt, and consequently be expelled from the Eurozone, or remain within the Euro economic area.
3. Greece is among the least saturated with Facebook countries in Europe with around 4 million users and less than 37% penetration in the population (<http://www.checkfacebook.com>). As the age group of the highest adoption of Facebook in the country is that of 25–34 years, followed by those 18–24 years, we chose to focus on these age categories aiming to capture people likely to adopt Facebook for the duration of our survey.
4. The unequal split between treatment and control groups was decided based on the expectation that panel attrition would be much higher in the treatment group due to the type of treatment.
5. Note that similar results can be obtained by the application of Factor Analysis, provided that we work with an appropriate type of item correlation matrix, for example, polychoric correlations for our Likert items. We prefer to work with the data directly.
6. For each reported participation type, we construct what is effectively a weighted aggregate of possibly different numbers and types of items, so it makes sense to normalise the factor scores to have fixed variance. This allows us to interpret coefficients in terms of standard deviations of response, abstracting from the details of our survey items. By aggregating in any way, from additive index construction to the IRT models we fit here, we should, provided the items do all tap the same participation type, improve the accuracy and efficiency of measurement. The price paid is that it is not easy to map back to particular items. It is also not possible to directly

compare levels of different types of reported participation. To offset this disadvantage, we also construct a general participation measure.

7. The education variable also generates statistically significant effects. There are too few cases to confidently distinguish subgroup effects, although higher levels of education correlate weakly with larger drops in reported participation.

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Notes on Contributors

Yannis Theocharis is Senior Research Fellow at the Mannheim Centre for European Social Research (MZES), University of Mannheim. His research interests are in political behaviour, new media, and social capital. [email: yannis.theocharis@uni-mannheim.de]

Will Lowe is Senior Research Specialist in the Department of Politics at Princeton University. He is a political methodologist focusing on quantitative political text analysis. [email: wlowe@princeton.edu]

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