

Revolution in the Making? Social Media Effects Across the Globe

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Abstract: Social networking sites are popular tools to engage citizens in political campaigns, social movements, and civic life. However, are the effects of social media on civic and political participation revolutionary? How do these effects differ across political contexts? Using 133 cross-sectional studies with 631 estimated coefficients, I examine the relationship between social media use and engagement in civic and political life. The effects of social media use on participation are larger for political expression and smaller for informational uses, but the magnitude of these effects depend on political context. The effects of informational uses of social media on participation are smaller in countries, like the United States, with a free and independent press. If there is a social media revolution, it relates to the expression of political views on social networking sites, where the average effect size is comparable the effects of education on participation.

Keywords: social media; political behavior; cross-national; meta-analysis; Facebook

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Introduction

Popular discourse characterizes the effects of social media as revolutionary (Elgot, 2015). Academic studies have also characterized the effects of social media on civic and political life as revolutionary (e.g., Gainous & Wagner, 2014). Such framing of effects rationalizes 500 million of dollars in spending in political campaigns (Green, 2016). However, with many studies offering different estimates of the relationship, the question of a revolution, i.e., “dramatic social change” (Marshall, 1994), is difficult to answer. This study examines whether these revolutionary claims are appropriate in light of 133 cross-sectional studies assessing the correlation between social media use and participation in civic and political life. To assess the magnitude of the relationship between social media and participation, this paper focuses on effect sizes.

While this study builds on other meta-analysis studies, this study is distinctive in the number of studies used in the meta-analysis. Other meta-analysis studies are much smaller in scale, e.g., 13 studies (Skoric, Zhu, & Pang, 2016), 22 studies (Skoric, Zhu, Goh, & Pang, 2015) and 36 studies (Boulianne, 2015). The greater number of studies helps to examine nuances in the data. What types of social media uses matter? How do the effects differ across political contexts? Finally, how the types of uses and political context interact in affecting participation in civic and political life?

The average standardized effect between social media use and participation is quite modest, e.g., in the .125 to .145 range, depending on the estimation technique. The effect is smallest when social media use is measured as information or news, particularly in political

systems with a free and independent press. The effects of informational uses of social media on participation are larger in countries without a free and independent press.

Aggregating results across the globe, the effects of social media are largest when social media use is measured as political expression, compared to other ways of measuring social media use. The strength of the relationship between political expression and participation may depend on political context. The relationship is strongest in systems with a free and independent press. Indeed, the average effect of social media use for political expression and offline participation is comparable to the effect of education on offline participation in civic and political life. In this sense, social media effects can be viewed as revolutionary.

Social media effects

Social media effects depend on the nature of use. This finding has been well-established in meta-analysis studies (Boulianne, 2015; Skoric et al., 2015, 2016) as well as within individual studies (e.g., Chan, 2016; Hyun & Kim, 2015; Park, 2015; Wells & Thorson, 2017; Valenzuela, 2013). The meta-analysis studies tend to differentiate information or news uses, network or relationship-building uses, and online forms of political expression. Untangling the effects of each type of use is difficult, because studies tend to use an aggregate scale of different social media activities (Boulianne, 2015). However, the theories underlying each of these types of use and their impact on participation are different.

The focus on *information* or news draws upon a long-standing literature that examines media use, political knowledge, and participation in civic and political life (e.g., Delli Carpini & Keeter, 1996; McLeod, Scheufele, & Moy, 1999). The premise is that social media use exposes people to information about political issues or current events, which raises their awareness and

knowledge of these issues and increases their likelihood of engaging in civic and political life (e.g., Boulianne, 2016; Saldana, McGregor, & Gil de Zúñiga, 2016; Towner & Muñoz, 2016; Wolfsfeld, Yarchi, & Samuel-Azran, 2016). The focus on *networking* or relationship-building draws on research suggesting that a key predictor of participation is formal and informal social ties that increase the chance of being asked to, and subsequently agreeing to, participate (Musick & Wilson, 2008; Verba, Schlozman, & Brady, 1995). Social media are critical platforms for building informal and formal social ties that can increase participation in civic and political life (e.g., Chan, 2016; Gil de Zúñiga, Copeland, & Bimber, 2013; Valenzuela, Park & Kee, 2009). Finally, the focus on online political *expression* draws upon new scholarship about the ease of online forms of participation (Krueger, 2002). This line of research also draws on Lazarsfeld's two-step flow of communication which points to the role of interpersonal discussion in amplifying media effects on political knowledge and participation (Eveland, 2004). The theory is that social media provides an easy method of sharing and discussing political issues, which facilitates enhanced knowledge and increases the likelihood of offline political expression and participation (e.g., Lu, Heatherly, & Lee, 2016; Skoric & Zhu, 2015; Yamamoto, Kushin, & Dalisay, 2015).

Meta-analysis studies differ in their claims about which types of social media uses matter most in predicting civic and political engagement (Boulianne, 2015; Skoric et al., 2015, 2016). Skoric et al. (2016) found that informational effects were stronger than relational or network effects in their meta-analysis, whereas Boulianne's (2015) meta-analysis suggests that network effects are stronger than informational effects. The former study focuses on studies in Asia, whereas the latter included a global perspective with a handful of studies from Asia. This paper re-visits this finding in light of new research in Asia (e.g., Chan, Chen, & Lee, 2016; Chan,

2016; Choi & Shin, 2017; Hyun & Kim, 2015; Park, 2015; Skoric & Zhu, 2016) and other parts of the world (e.g., Leyva, 2016; Lu, Heatherly, & Lee, 2016; Saldana et al., 2016; Towner & Muñoz, 2016; Vaccari, Chadwick, & O'Loughlin, 2015). Which types of social media uses matter most to participation and how does political context affect the relationship between types of social media use and participation?

The story of social media effects cannot be told by focusing on a specific country or on a handful of countries. Almost 80% of Facebook users and 72% of Twitter accounts are outside of the United States (Alexa.com, 2016a,b), but the United States has been the focal point for the bulk of research on the effects of social media on participation (Boulianne, 2015). While social media are important in Western democracies, social media may be even more important in countries without a free and independent press. Howard and Hussain (2013) describe how Arab civil society is pushed online, because of heavy state control of broadcast media (also see Tufekci & Wilson, 2012). Without a free and independent press, social media, particularly blogs, are critical to the distribution of information about political issues and political corruption. Social media are critical tools for coordinating political activities outside the surveillance the state, including creating international connections, raising funds, and activating support (Howard & Hussain, 2013). Finally, in countries without a free and independent press, social media may offer the only form of political engagement possible. Protesting in the street or voting in an election may not be options in some political systems, leaving citizens to express their political discontent in (relatively) safer online spaces, such as on social networking sites (Howard & Hussain, 2013; Tufekci & Wilson, 2012).

Social media provide a critical platform for political discussion, including the expression of political opinions about political candidates, current events, and political issues. New studies

highlight the role of political expression on social networking sites (e.g., Becker & Copeland, 2016; Lu, Heatherly, & Lee, 2016; Skoric & Zhu, 2016; Vaccari, Valeriani, et al., 2015; Yamamoto, Kushin, & Dalisay, 2015). Some of these studies measure political expression as any interactive social media use about politics, while others see it as a form of engagement, akin to offline political talk. This different treatment is also evident in meta-analysis studies where political expression on social media is an outcome and a predictor of social media use (Skoric et al., 2016).

Aligning political expression with discourse about online engagement raises concerns about “slacktivism”. In particular, online forms of political expression, such as blogging, could “feel good” but have little impact (Christensen, 2012; Štětka, & Mazák, 2014; Wolfsfeld et al., 2016). Political expression on social media could be viewed as a superficial method of criticizing the political system without requiring any concrete, offline action. However, this view assumes a free and democratic society where offline political action is a given right. In Egypt and other authoritarian states, bloggers exposing political corruption are regularly harassed and, in Khaled Said’s case, killed for sharing this information online (Howard & Hussain, 2013). Nonetheless, this online form of political expression may be particularly attractive in authoritarian and hybrid regimes (Skoric et al., 2016). Skoric, Zhu, and Pang (2016: 2) suggest that while this online form of expression is attractive in these political systems, the potential of these expressive acts to translate into “real-world political action” is limited, because of government restrictions. They found a larger effect of social media use on political participation in democratic countries in Confucian Asia, compared to authoritarian or hybrid countries (Skoric et al., 2016).

In sum, the research questions are: 1) What is the magnitude of the relationship between social media use and participation? 2) How do the effects of social media differ by type of use

(information, networking, political expression)? 3) How do the effects differ for political systems with a free press versus those with a partly free or a lack of a free press? 4) How do the types of uses and political context interact in their effects on offline civic and political participation?

Methods

This paper includes the results from 133 cross-sectional studies examining social media use (Facebook, Twitter, YouTube, blogs, and similar sites) and offline engagement (voting, talking politics, participating in street marches, signing petitions, boycotting, volunteering in the community, donating, and similar activities). Organizational memberships are excluded from analysis. The list of studies was compiled using academic databases in the social sciences as well as using Google Scholar. The most popular search strategy for meta-analysis is an academic database search, but this approach can lead to the over-representation of significant findings (Borenstein et al., 2009; Ellis, 2010; Lipsey & Wilson, 2001). Google Scholar helps to address this bias by including conference papers, dissertations and master's theses. When a published and an unpublished version of a manuscript are available, the published version is included in the meta-analysis.

Once a relevant study was identified, the reference list of the published study was consulted as well as any citations that the articles received. In addition, on March 29, 2017, the online advance copies of articles were examined in the following journals that regularly publish studies in this field, including *New Media & Society*, *Information, Communication & Society*, *Political Communication*, *Journal of Computer-Mediated Communication*, *Social Science Computer Review*, *Journal of Political Marketing*, *Journal of Information Technology and Politics*, *Mass Communication & Society*, and *Computers in Human Behavior*. The goal was to

compile all studies on this topic, rather than a sample. [A full listing of studies is available as supplementary material on the publisher's website and on the author's website \(URL withheld to enable blind review\).](#)

To offer clarity between the two variables, I exclude results that blur this distinction. While considering offline and online forms of political engagement helps provide a holistic view of contemporary forms of engagement, the purpose of this meta-analysis is to examine the relationship between the two variables, which requires clarity on the measurement of these types of activities. The focus is on behaviors, as opposed to attitudes. As such, studies or components of studies that focus solely on political interest or behavioural intentions, such as voting intentions, are excluded from analysis (e.g., Kruikemeier & Shehata, 2016).

Since prior meta-analyses illustrate the great impact of research design on findings (Boulianne, 2009, 2015), experimental designs and longitudinal studies are excluded from the analysis. Experimental designs make stronger claims to causal effects, compared to cross-sectional surveys. However, they can also produce substantially different results. There are several key experimental studies in this field of research (Bond et al., 2015; Theocharis & Lowe, 2015). In addition, prior meta-analysis suggests that the effects differ for longitudinal and cross-sectional designs (Boulianne, 2015). As such, studies that use *exclusively* longitudinal design are excluded from the analysis. Studies that include both cross-sectional and longitudinal analysis are included but the analysis focuses on cross-sectional findings (e.g., Bode, Vraga, Borah & Shah, 2014; Ekström, Olsson, & Shehata, 2014; Gil de Zúñiga, Molyneux, & Zheng, 2014; Koc-Michalska, Gibson, & Vedel, 2014). The exclusion of experiments and longitudinal studies provides a body of research focused on correlational analysis.

Effect size is a critical metric in meta-analysis research (Borenstein et al., 2009; Ellis, 2010; Lipsey & Wilson, 2001; Skoric et al., 2015, 2016). For example, an average effect size of .07, as observed in Internet use and engagement in civic and political life (Boulianne, 2009), raises questions about whether digital media use has a substantial effect on engagement. Studies use a wide variety of techniques to calculate effects, including logistic regression, ordinary least squares regression, maximum likelihood estimation, and poisson regression. The findings from these diverse techniques can be easily summarized using an analysis of statistical significance (e.g., .05 threshold, see Ellis, 2010). The findings from these diverse analysis techniques cannot be easily transformed into a common metric allowing comparison across studies.

Many studies report standardized ordinary least squares regression (OLS) coefficients, which have been used in estimating average effect sizes in other meta-analysis studies (e.g., Boulianne, 2009). However, focusing on this type of analysis and this type of coefficient would lead to a good deal of missing data when calculating effect sizes. For example, Boulianne (2009) reports on a database of 166 coefficients, but only 85 coefficients reported standardized OLS coefficients. Skoric et al. (2015) identified 35 relevant studies, but after contacting authors to fill in the missing effect estimates, they ended up with only 22 studies about social media effects on social capital, political participation or civic engagement.

Standardized coefficients were calculated for those studies that did not report standardized OLS coefficients. For unstandardized OLS coefficients, the standardization involved multiplying the unstandardized coefficients by the standard deviation of the independent variable divided by the standard deviation of the dependent variable. In some cases, authors did not report the standard deviation for these variables, leading to missing coefficients in the meta-analysis database.

For logistic regression results, the standardization of coefficients is less straightforward. If odds ratios were reported, the coefficients were converted into odds. Then, using Menard's (2004) approach of standardizing odds coefficients, the odds coefficients were multiplied by the standard deviation of the independent variable, then divided by $(1 + \pi/\sqrt{3})$. The formula has precedence as studies included in the meta-analysis have used this approach for standardizing their coefficients (see Kahne, Lee & Feezell, 2013). The standardization of poisson regression coefficients and negative binomial regression coefficients has little precedence. As such, these coefficients were excluded from the calculation of effect sizes. The analysis of average effect size includes all coefficients that were reported in standardized form or were successfully transformed into standardized coefficients ($n = 423$). Missing coefficients could raise concerns about bias. As such, the analysis is supplemented with an assessment of whether the coefficients are statistically significant or not, which analyzes all 631 estimates. Statistical significance correlates with effect sizes (Ellis, 2010).

Most studies report multiple estimates of the relationship between social media use and engagement. Lipsey and Wilson (2001) suggest the calculation of a single coefficient for each study by averaging the multiple coefficients. This analysis is done (111 average effects from 133 studies), but this approach prevents the analysis of differences in findings for different social media measures (Boulianne, 2009, 2015). As such, the analysis also examines the multiple coefficients within the 133 studies.

Table 1 provides a profile of the studies used. As mentioned, all studies are cross-sectional surveys. The year 2012 was a popular year for the study of social media effects (214 coefficients over 32 studies). A good deal of this research is based on university or high school students (210 coefficients over 43 studies).

[Table 1 here]

Countries were classified using the Freedom House (2015) ratings for freedom of the press. Countries with a free press include the United States, Australia, Belgium, Canada, Czech Republic, France, Germany, Israel, Lithuania, Netherlands, Norway, Spain, Sweden, Taiwan and the United Kingdom (398 coefficients across 90 studies). Countries with a partly free press include Brazil, Chile, Colombia, Hong Kong, Italy, South Korea, and Tunisia, (139 coefficients over 29 studies). Countries without a free press include China, Egypt, Malaysia, Singapore, and Turkey (87 coefficients over 17 studies). Several studies include samples from multiple countries (Chan, Chen, & Lee, 2016). Because there were relatively fewer studies with a partly or lack of free press, these categories had to be combined for analysis. Some studies focused on regional studies, which could not be classified using this system and thus, were excluded from analysis.

The findings are assessed in terms of differences based on measurement approach. Social media use was divided into online news or political information (e.g., read blogs and read about political issues on social media) and networking (e.g., number of friends and number of political officials or organizations respondent likes/follow). This approach replicates the informational versus networking uses approach used in other meta-analysis studies (Boulianne, 2015; Skoric et al., 2015, 2016). Social media use variables are also divided into general use (e.g., whether or not respondent has a social networking account, time spent on social networking sites) and political expression (e.g., discuss politics on social media). Many measures of social media use combined survey responses from across the typology and thus, were coded as “other measurement approach”. Recreational uses of social media were rarely singled out in relation to their effects on participation. As such, this type of measure was bundled with the “other measurement” approach.

Findings

These results are based on approximately 100,000 survey respondents across the 133 cross-sectional studies. To assess the magnitude of the relationship, I examine the effect size at the study-level (Figure 1). As mentioned, each study offers one effect size for this analysis and in the case of multiple coefficients, the multiple coefficients within a study are averaged prior to inclusion in the calculation (Lipsey & Wilson, 2001). Some studies were not included because they included coefficients that could not be standardized. Based on 111 studies with 111 coefficients, the average effect size is .145 (SD=.129). This approach does not permit an analysis of how the coefficients differ by type of social media use. This type of analysis requires a focus on the multiple coefficients or multiple measures of social media use within studies ($n = 631$).

[Figure 1 here]

For all 631 coefficients, we know whether the effect was significant or not. As such, this analysis is paired with the analysis of effect sizes ($n = 423$) to address any concerns about missing coefficients. Approximately 47.54% of the coefficients ($n = 631$) are significant at the .05 level. For those coefficients that could be standardized, the average effect size is .125 ($n = 423$). This effect size is modest. The standard deviation is .161, which demonstrates a good deal of variation in the estimates. Figure 2 demonstrates the great variation in estimates of the relationship between social media use and participation in civic and political life. The standardized coefficients range in size from -.307 to .768. The author's calculation of a standardized effect from an unstandardized effect did not impact on the average effect calculation ($p = .354$). The highest coefficients are those related to political expression on social media and participation in civic and political life (e.g., Groshek & Krongard, 2016; Kim, 2016).

[Figure 2 here]

The largest effects are observed when focussing on social media for political expression (Table 2). The average effect size is .217 (SD = .174). Measuring social media for political expression is also likely to produce a significant effect; 70.07% of these coefficients are statistically significant. The distinctiveness of this type of use remains in a multivariate model predicting significance ($p < .001$) and effect size ($p < .001$), controlling for sample size. Focusing on political expression is more likely to be produce a significant effect and a larger effect, compared to other types of measures. For example, Chan, Chen, and Lee (2016) examine how social media use for political expression affects political discussion offline. In China and Hong Kong, the effect is .16 and in Taiwan, a political system with a free press, the effect is .26 (Chan et al., 2016). Hyun and Kim (2015) examine political expression and participation, reporting a standardized effect of .16 for a sample of Koreans. Valenzuela (2013) reports an effect size of .25 for political expression and participation for a sample of Chilean youth. Finally, Choi (2016) report an effect size of .32 for political expression and participation for a sample of Americans.

[Table 2 here]

Generic uses of the social media, such as frequency of use, produce a smaller average effect size than other types of uses (Table 2). Focusing on frequency of use produces an average effect size of .056 (SD = .098). This distinct pattern remains in a multivariate model predicting significance ($p < .001$) and effect size ($p < .001$), controlling for sample size.

Focusing on social networks produces an average effect size of .156 (SD = .159). Using Pew Research Center data from 2012, Becker and Copeland (2016) find that using social networking sites to meet new friends affects boycotting. They employed logistic regression analysis and as such, the standardized effect required calculation using Menard's (2004) formula.

The calculated standardized effect was .137. The findings replicate effect sizes from one of the first social networking studies (.145) (Valenzuela, Park & Kee, 2009).

Focusing on online news or information through social media produces a smaller effect, on average (.070, SD = .106), compared to social networking or relationship building. The distinctiveness of news uses remains in a multivariate model predicting significance ($p < .01$) and effect size ($p < .001$), controlling for sample size. Using data from the 2012 American National Election Study, Chan (2014) finds that blog use for election information positively (.05) relates to a seven-item scale related to campaign participation, e.g., talking about the election, donating money to a campaign, and working for a campaign. Leung and Lee (2014) report on a random digit dialing sample of Chinese citizens conducted in 2013. They examine the relationship between protest participation and informational uses of social media (.18). There is a good deal of variation in the estimates of the relationship between informational uses of social media and participation. At the aggregate level, the results suggest that type of social media use matters in understanding the effects on participation. The effects are larger for political expression and networking, compared to information (Table 2).

How do the effects differ depending on whether the political system has a free press or not? At the aggregate level (all social media uses), there are no differences between the two types of system in finding significant coefficients ($p = .191$). These results are illustrated in Figure 3.

[Figure 3 here]

Because social media measurement approach plays a large role in the findings (Table 2), the analysis of differences by political systems must also account for measurement approach (Figure 3). To ensure a sufficient sample size for comparison, the focus is on the likelihood of

finding a significant effect, rather than effect size. Informational uses are particularly relevant for understanding differences by political system defined by freedom of the press (see prior discussion of Chan, 2014 and Leung & Lee, 2014). Looking at the informational effects of social media, free press systems are remarkable in their extremely low likelihood of producing a significant effect ($n = 111$), compared to systems without a free press ($n = 50$). Approximately 35.14% of information effects are significant in free press systems, whereas 50.00% of informational effects are significant in other types of systems (Figure 3). The difference is statistically and substantively significant ($p = .083$).

There are other differences in the relationship between types of social media use and participation, depending on political context. However, these differences are more suggestive, rather than definitive, because of the small sample sizes. Looking at political expression and participation, the relationship is slightly more likely to be significant in free press systems, than in systems without a free press ($p = .119$). Approximately 74.44% of expression effects are significant in free press systems ($n = 90$), whereas 60.87% of expression effects are significant in other types of systems ($n = 46$). As for general social media uses, there are also small differences ($p = .165$) between free press systems ($n = 54$) and other systems ($n = 62$). Likewise, there are small differences between free press systems ($n = 65$) and other systems ($n = 29$) related to social networking or relationship-building ($p = .216$).

Discussion

The findings of this meta-analysis affirm that measurement matters. Examining a large number of studies has provided clarity about how differentiated uses of social media affect participation. Skoric and colleagues found that informational effects were stronger than

relational or network effects (Skoric et al., 2015, 2016), whereas Boulianne (2015) suggests that network effects are stronger than informational effects. However, political context could partly explain these conflicting findings. Information effects were more likely to be significant in systems without a free press, compared to the United States and other free press systems.

Further research should untangle information effects in the context of election campaigns versus outside campaigns. The effects of socially mediated information on campaign participation may be limited, because there are many competing sources of information and because of the uniqueness of voting as a political activity (Boulianne, 2015, 2016). Reflecting the current literature, this meta-analysis includes a good deal of studies focused on information in the context of US presidential elections and other electoral contexts, such as the French presidential election 2012 (Koc-Michalska et al., 2014), the 2014 European Parliament elections (Vaccari, Chadwick, & O'Loughlin, 2015), 2013 general election in Italy (Vaccari, Valeriani, et al., 2015), the Israeli 2013 election (Wolfsfeld et al., 2016), and the United Kingdom's 2015 General Election (Leyva, 2016; Lilleker & Koc-Michalska, 2017). The meta-data cannot untangle whether the role of socially mediated information is different within an election context compared to outside an election. Future cross-national research requires a consistent measure of information and similarity in electoral contexts.

In addition to cross-national work, another line of promising research relates to platform effects. Existing research tends measure "social media" use without specifying a specific platform. When studies do specify a platform, the focus tends to be Facebook ($n = 146$). Towner (2013; as well as Towner & Muñoz, 2016) argues the need to examine the varied social media options. She advocates for the exploration of platform effects (also see Bode et al., 2014; Tufekci & Wilson, 2012; Vraga, 2016). For example, blogs seem to have a strong effect on political

participation in some studies (Ponder & Haridakis, 2015; Skoric et al., 2015; Towner, 2013; Vraga, 2016; Wells & Thorson, 2017). However, it is unclear whether the strong correlation reflects a self-selection bias – blog users are more likely to be politically interested and those who are more politically interested are also more likely to participate. Isolating platform effects is difficult because 52% of Internet users use multiple social networking sites (Duggan et al., 2015). Dividing the different social networking sites into specific experiences seems arbitrary, because YouTube is one of the most popular sites linked to within Facebook (Alexa.com, 2016a). As another example, Wells and Thorson (2017) examine the use of Facebook for liking political blogs, illustrating the interconnectedness of social media. Given the seamless use of multiple platforms, it is difficult to distinguish the use of specific platforms. While platform effects seem to be a promising line of future research, the challenge will be untangling the effects of specific platforms given the interconnectedness of their uses.

The average effect size, .125 at the effect-level and .145 at the study-level, is hardly revolutionary. However, this effect size is consistent with meta-analysis studies on other topics (Ellis, 2010). Indeed, if there is a revolution related to social media, the revolution relates to political expression with an average effect size of .217. The effect size is comparable to the effect of education on political and civic participation. Many scholars see online expression as a form of engagement in civic and political life, akin to wearing a campaign button, posting a lawn sign, or having a bumper sticker. However, unlike these offline activities, online political expression offers greater space to comment on a candidate, issue or campaign, rather than just simply displaying a mass-produced button, sign, or sticker. Citizens can characterize and personalize their support or discontent. This expanded opportunity to share and discuss one's political views is indeed revolutionary.

Furthermore, social media offer ample opportunities to share text-based and multi-media expressions of one's political views. The act of sharing these views is revolutionary in scale. Political expression on social media has produced a voluminous amount of data about citizens' political views, voting preferences, and thoughts about current events. Social media platforms provide data about citizens' postings, enabling researchers to combine reported behavior in surveys with actual social media use (e.g., Wells & Thorson, 2017) or even replace surveys as a method for gathering public opinion (Barbera & Rivero, 2015). This information is also available for commercial uses and for micro-targeting of political messages from political campaigns. Social media use for political expression also provide opportunities for state surveillance of citizens and in non-democratic system, this political expression could have a real cost. This could explain why the relationship between political expression on social media and offline forms of participation was slightly less likely to be significant in systems without a free press, compared to systems with a free press. In non-democratic systems, there may be some reluctance to move online forms of political expression into "real-world political action" (Skoric, Zhu, & Pang, 2016: 2). However, for both types of political systems, this type of social media use has the strongest correlation with offline forms of civic and political participation.

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Table 1. Profile of studies

	Number of studies	Number of coefficients
<i>Analysis based on date of data collection</i>		
2004-2007	5	20
2008	20	76
2009	5	18
2010	15	38
2011	15	87
2012	32	214
2013	13	48
2014	15	63
2015	5	33
<i>Type of sample</i>		
University students or other school-based samples	43	210
Other youth sample	12	46
Random sample, such as random digit dialing surveys	35	164
Online panels matched to Census characteristics	21	76
Other types of samples, including surveys of social media users, intercept street surveys, etc.	22	135
<i>Sample size</i>		
Less than 250 respondents	17	96
250 to 500 respondents	36	212
500 to 750 respondents	18	76
750 to 1000 respondents	24	74
1000 to 1250 respondents	14	66
1250 to 1500 respondents	4	18
1500 respondents	19	89
Total	133	631

Several studies do not report the year of data collection.

Table 2. Findings by type of social media measure

	Percentage of significant coefficients	Average effect size (standard deviation)
All measures of social media use	47.54% <i>n</i> = 631	.125 (.161) <i>n</i> = 423
<i>Types of Social Media</i>		
Political expression	70.07% <i>n</i> = 137 <i>p</i> < .001	.217 (.174) <i>n</i> = 87 <i>p</i> < .001
Online news or political information	39.88% <i>n</i> = 163 <i>p</i> = .022	.070 (.106) <i>n</i> = 134 <i>p</i> < .001
Building social networks or relationship-building	51.06% <i>n</i> = 94 <i>p</i> = .463	.156 (.159) <i>n</i> = 60 <i>p</i> = .108
General use	29.41% <i>n</i> = 119 <i>p</i> < .001	.056 (.098) <i>n</i> = 73 <i>p</i> < .001
Other or combined measures	47.46% <i>n</i> = 118 <i>p</i> = .984	.161 (.212) <i>n</i> = 69 <i>p</i> = .108

The analysis is based on a series of t-test of two group means. All t-tests of group means assume unequal variance between the two groups. *p*-values are based on two-tail tests.

Figure 1: Sampling Distribution of Coefficients by Study (111 studies)

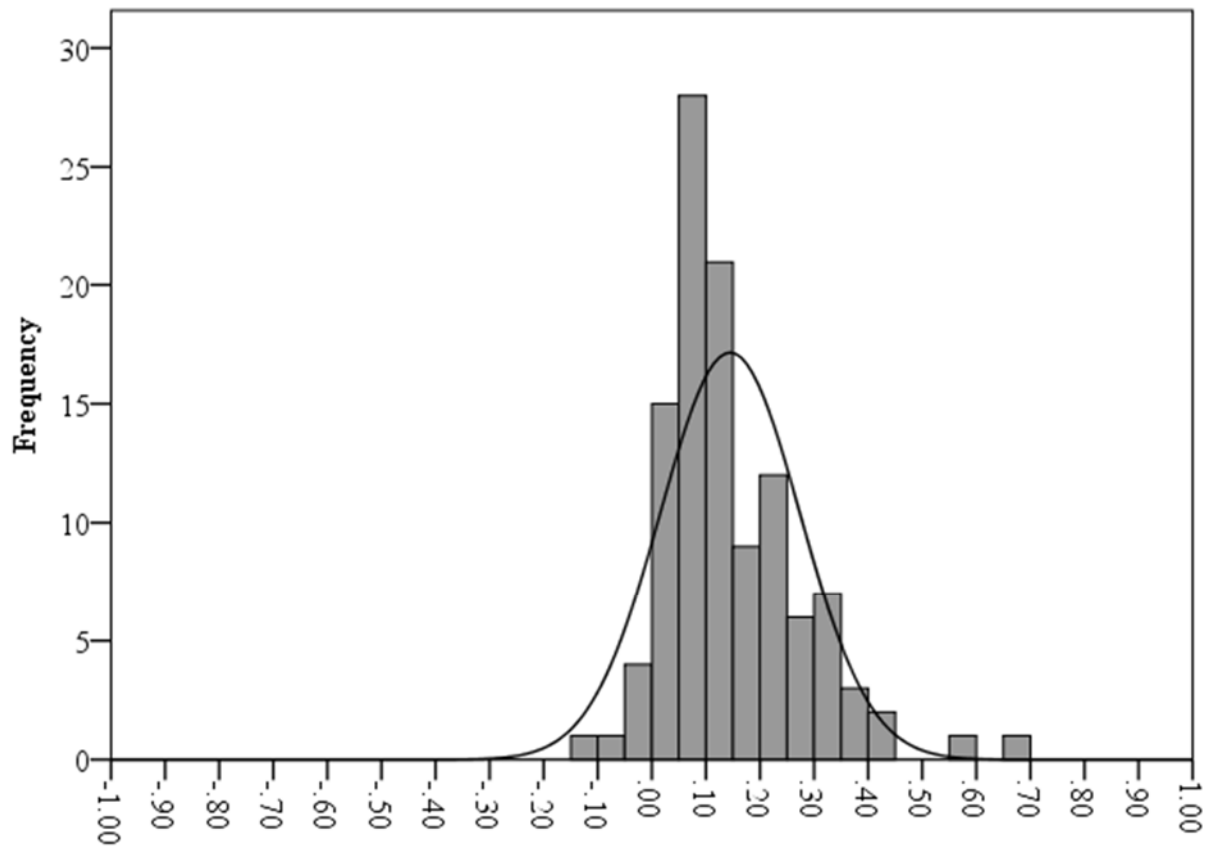


Figure 2: Sampling Distribution of Standardized Coefficients (423 Coefficients)

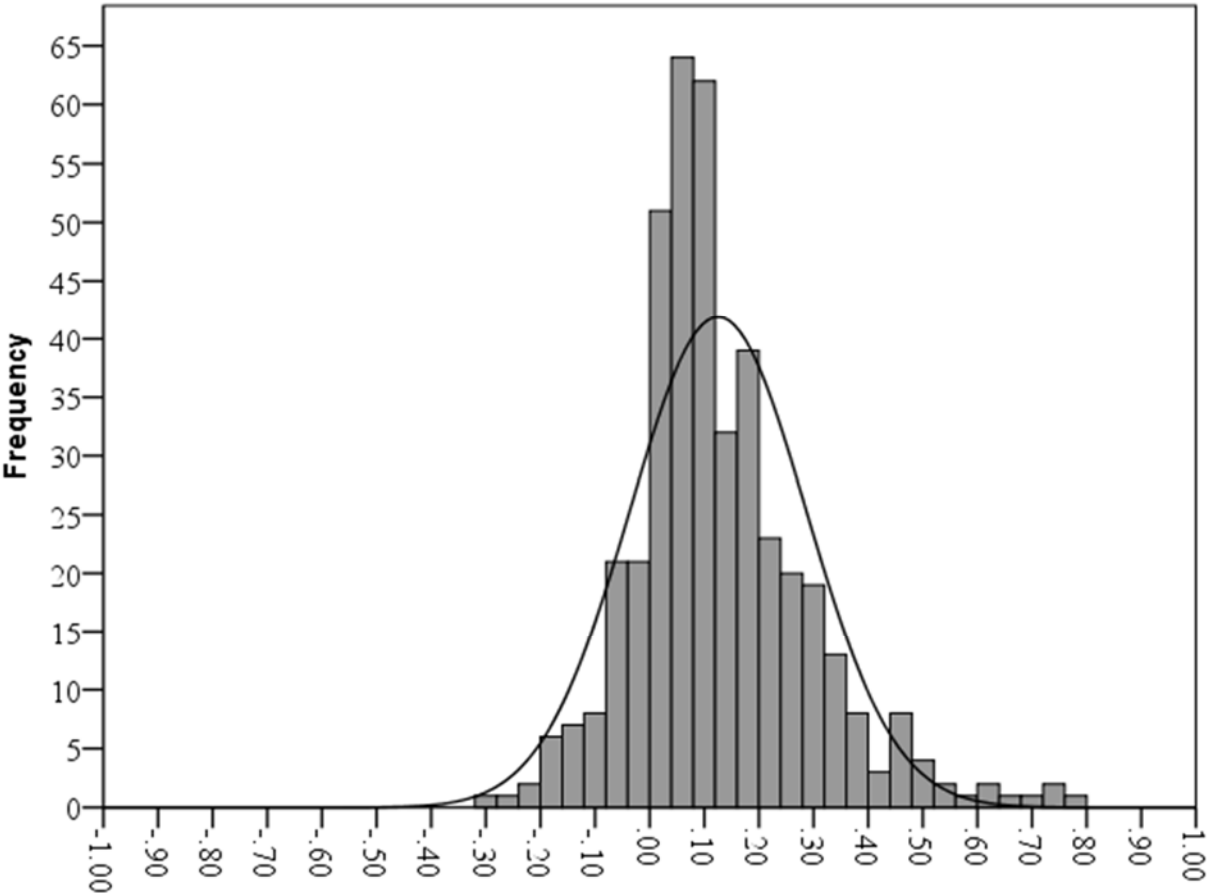


Figure 3: Percentage of statistically significant coefficients

