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Ties, Likes, and Tweets: Using Strong and Weak Ties to Explain Differences in Protest Participation Across Facebook and Twitter Use

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Based on the theoretical concepts of social networks and technology affordances, this article argues that different social media platforms influence political participation through unique, yet complementary, routes. More specifically, it proposes that Facebook and Twitter are conducive to protest behavior through two distinct mechanisms: whereas the influence of Facebook use is more effective through communication with strong-tie networks, the impact of Twitter use is more effective through communication with weak-tie networks. To test these expectations, we analyze data from a cross-sectional, face-to-face survey on a representative sample of Chilean youths conducted in 2014. Findings in the study lend empirical support for these hypotheses. Consequently, while different social media (in this case, Facebook and Twitter) are similar in their participatory effects, the paths through which this influence occurs are distinct, a finding that highlights the importance of studying political behavior across different media platforms.

Keywords political behavior, protest, social media, social networks, strong ties, weak ties

Because most studies on social media and political participation show a positive, albeit weak, relationship (Boulianne, 2015), it has been argued that the proper question is not *whether* but *how* using social platforms translates into citizen engagement (Kim & Chen, 2015). Without testing for possible mechanisms of influence, claims of causality between social media use and political behavior will remain unclear, if not outright speculative. In this article, we examine one such path: "strong" and "weak" social ties (Granovetter, 1983), which enable people to obtain different types of resources (Coleman, 1988; Lin, 1999). Because social media services have particular characteristics and affordances, we argue that different platforms enable a more effective communication with different types of social ties. In turn, these ties facilitate unique, yet complementary, routes for engaging in political activities (Campbell & Kwak, 2011). Specifically, we theoretically propose that

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whereas Facebook specializes in strong ties, Twitter is an efficient medium for accessing weak ties. Consequently, Facebook is efficient at promoting engagement by providing the social pressure and reinforcement needed to engage in costly, time-consuming actions such as participation in street demonstrations, which are all features mostly carried on in strong-tie networks. Twitter, in contrast, is better at injecting novel information (e.g., political news, mobilizing information, contacting, etc.) by relying on a weaker, more heterogeneous, social network structure. Importantly, these two types of social ties, reached through both Facebook and Twitter, may be conducive to political participation.

Distinguishing between social media platforms based on their unique affordances and examining possible paths of influence of social media on political behavior as they relate to these affordances has been a pending issue for the field of political communication and digital technologies. For one thing, few studies in this context have observed the nuanced influence these different digital platforms and social networks have over participatory behaviors (e.g., Comunello, Mulargia, & Parisi, 2016; Rossi & Orefice, 2016; Valenzuela, Arriagada, & Scherman, 2014). To fill in this gap and test our expectations, we first review the literature on social media, social networks, and protest behavior—the type of political act that has been shown to be most closely linked to usage of social media (Skoric, Zhu, Goh, & Pang, 2016). Subsequently, we present a study employing original representative survey data from Chile. The results suggest that the link between social media use and protest participation is explained by the type of social network with which users communicate. When Twitter connects users with weak-tie networks, Twitter is positively linked to protest participation. Conversely, when Facebook connects users with strong-tie networks, Facebook is conducive to protesting. Interestingly, neither strong-tie Twitter use nor weak-tie Facebook use exhibit a statistically significant relationship with protesting. We close with a discussion on the significance of these results for the field of social media and political communication, with special emphasis on the value of studying political communication and behavior across social media platforms.

Social Media and Political Participation

The simultaneous rise of social media and protest movements around the globe after 2008 (e.g., the Umbrella Revolution in Hong Kong, the anti-austerity protests in Greece, the *Indignados* in Spain, and the Chilean student movement) sparked a widespread interest in analyzing the link between the use of these digital platforms and different forms of political participation. To date, most of the work in this area has found a positive relationship between social media use and citizen engagement, particularly when it involves protest behavior (Boulianne, 2015; Skoric et al., 2016). While there are notable exceptions to this pattern (especially in authoritarian countries; see Hassanpour, 2014; Oates, 2013), at this point the literature has matured enough to go beyond the phase of attesting the existence of an influence between using social media and engaging in political behaviors. Rather, more theoretical and empirical work needs to be conducted on the conditions and mechanisms that may explain the positive influence of different types of online social services and their particular media attributes and characteristics on specific forms of political participation.

Extant research has proposed several explications that shed light on the effects of social media use on participation. One explanation is that users encounter news and mobilizing information—that is, new opportunities to participate—through their family, friends and/or extended networks with which they have contact on social media (Tang & Lee, 2013; Xenos, Vromen, & Loader, 2014). This exposure to political information on

social media need not be purposeful: even if it is incidental, it may become influential because it has been shared or posted online by trusted networks (Bode, 2012). A second explanation is the possibility of political contacting: compared to nonusers, frequent users of social media have a higher probability of developing ties with political or civic groups that seek online volunteers for their respective cause or issue (Musick & Wilson, 2008). Another mechanism refers to the positive effect informal political discussion and deliberation exert as they take place in social media platforms (Halpern & Gibbs, 2013), which has been shown to be an effective pathway for political participation (Vraga, Thorson, Kligler-Vilenchik, & Gee, 2015). Finally, some work has examined the role played by processes of "social contagion," by which mere political expressions and opinions shared on social media (e.g., show support for a political cause or movement) by a group of users are imitated by other groups (Vitak, Zube, Smock, Carr, Ellison, & Lampe, 2011). In addition, and important to this study, recent literature has found that informational uses of social media may have different effects on participatory behaviors than expressive behaviors in social media platforms (Gil de Zúñiga, Bachmann, Hsu, & Brundidge, 2013); and different types of discussion network attributes lead to distinct political outcomes online and offline (Valenzuela, Kim, & Gil de Zúñiga, 2012).

In sum, the literature has investigated how social networks encountered through these platforms may provide different resources such as novel information, possibilities of discussion, political expression, and recruitment. Most of these studies, however, analyze one platform and then generalize the results to all platforms (e.g., Halpern & Gibbs, 2013). Other works, while studying the role of digital technologies on political behavior across several platforms, combine their use into a single variable or scale (e.g., Xenos et al., 2014), which may obscure important differences across media. This is problematic because each service has unique characteristics and affordances (Ellison & Vitak, 2015; Enli & Skogerbø, 2013).

In order to tackle this issue, in the current study we argue—based on the theoretical concepts of social networks and technology affordances—that different social media influence political participation through unique paths by providing effective access and communication to different types of social networks. More specifically, we propose that Facebook and Twitter are conducive to protest behavior through two distinct mechanisms: whereas the influence of Facebook use is more effective through communication with strong-tie networks, the impact of Twitter use is more effective through communication with weak-tie networks.

SOCIAL NETWORKS AND POLITICAL PARTICIPATION

Social science research has used the concept of social networks to explore the benefits obtained through the development of social connections. Social relationships provide access and use of resources embedded in these networks (Coleman, 1988). Thus, people who cultivate larger, more heterogeneous networks have greater access to resources than people who have smaller, homogeneous networks. According to Lin (1999), embedded resources in social networks improve the outcomes of people's activities because they facilitate the flow of information and provide useful information about opportunities and options (Correa, Pavez, & Contreras, 2017). Networks also alert an organization about the availability of an otherwise unrecognized individual, lowering the cost of recruitment or—in the case of politics—campaign contacting.

Although there are many attributes embedded in a social network, most authors distinguish between two types of network structures: "weak ties" and "strong ties."

According to Granovetter (1983), weak ties are acquaintances (i.e., the friend of a friend) who serve as links with more distant clusters of people, and provide more novel information, resources, and diverse perspectives. Strong ties, on the other hand, are comprised of individuals' intimate connections such as family and close friends who may share overlapping information but can provide emotional support, trust, mutual regard, and reinforcement of ideas (Kenny, 1994). How do these different structures of networks affect collective action and political behavior? There are two possible routes. Following Granovetter's (1983) argument about the "strength of weak ties," it is argued that more distant networks provide an efficient venue for information diffusion and political contacting (Baybeck & Huckfeldt, 2002; Somma, 2009). Although weak ties may not necessarily be heterogeneous, the evidence suggests that larger networks tend to be more diverse, linking people to different contacts and information sources (Campbell, Marsden, & Hurlbert, 1986; Eveland & Hively, 2009). They share more novel information, opportunities and choices to participate, recruit, and be recruited, which can diffuse rapidly through people who may not know each other personally but may become connected through weaker ties. As a result, people learn about new opportunities for political mobilization (Gil de Zúñiga & Valenzuela, 2011; La Due Lake & Huckfeldt, 1998).

The alternative route, labeled "the strength of strong ties" (Valenzuela et al., 2014, p. 2050), emphasizes the importance of homogeneity and reinforcement for spreading and adopting behaviors in a social network, such as political mobilization. Information can be rapidly diffused through weaker ties but the influence on behaviors such as a political action and protest activity is harder to attain. Political engagement—an activity that is far removed from daily life for most citizens—requires social reinforcement and pressure. As political socialization research has shown, frequent encounters with family members, spouses, and close friends have a preeminent social influence on people's political behaviors (Straits, 1991) This is because the emotional connections among strong ties provide the social weight and contagion needed for influencing individuals' behaviors and collective actions (Bond et al., 2012; Centola, 2011).

AFFORDANCES OF SOCIAL MEDIA

Affordances have been defined as "the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used" (Norman, 1988, p. 9). Although this definition has been useful in the design of digital media and technology, it is more focused on the device than the user. Because the properties of social media emerge from the interplay between the sites and the users, another definition that captures this interaction is Gaver's (1991), who defined affordances as "properties of the world defined with respect to people's (and social) interaction with it" (p. 80).

Following an emphasis on the relational aspect of affordances, scholars who work on digital communication and social networks have focused on the social affordances of technology, defining them as the possibilities for social relations and structure (Wellman, 2001). In line with other social media researchers (e.g., Ellison & Vitak, 2015), we adopt a more nuanced approach that captures the interaction between the materiality of the technology and the users' social construction of it. In other words, affordances are conceived here not only as the properties of a device or application but emerge from "the relationship between the people and the materiality of the things with which they come in contact" (Treem & Leonardi, 2012, p. 146).

An important body of work delves into the affordances of social media that distinguish their particularities as different from other digital platforms. Social media have been defined as "internet-based applications that build on the ideological and technological foundations of the Web 2.0, and that allow the creation and exchange of user-generated content" (Kaplan & Haenlein, 2010, p. 62). The term serves as an umbrella for the increasing user-driven and social online platforms such as wikis, social network sites, and microblogging sites. Based on research in organizational settings, Treem and Leonardi (2012) suggested that social media, as a unitary concept, afford visibility to the information, persistence of the original content, editability of the content, and association among users. Similarly, boyd (2010) described social media affordances as persistence, replicability of content, scalability (i.e., potentially reaching large audiences), and searchability. Ellison and colleagues (2014) added to this list the possibility of creating and maintaining relationships with a large net of contacts.

Although the list of affordances applies to several social media applications, here we delve into the differences between Facebook and Twitter, including the possibilities each platform affords to users' protest behavior in general. On the one hand, Facebook's network of user profiles—in contrast to the network of Facebook pages or "fan" pages—is rather symmetrical and based on reciprocal approval (that is, in order to connect with someone, both parties have to approve the relationship). As a result, although Facebook users have the possibility to connect with people they do not know personally, in reality research has found that most people use Facebook to connect with individuals with whom they already have an existing relationship and/or shared identity (Ellison, Steinfield, & Lampe, 2007). The latter helps explain the benefits of Facebook for the maintenance of existing social ties, including family as well as current and old friends. Twitter, on the other hand, allows more unidirectional or asymmetrical connections, where reciprocal approval is not needed to follow and contact other users. Thus, Twitter networks can include family and friends but it is easier to follow people who users do not know personally—the so-called weaker ties—such as politicians, commentators, celebrities, news organizations, journalists, or any opinion leader. Put another way, all Twitter connections are functionally the same, whether they are close interpersonal connections or news connections, politician connections, celebrity connections, and so forth. On Facebook, in contrast, news, politicians, and celebrities show up mostly as "likes" rather than "friends." Although these clear distinctions may also affect the way personal connections are perceived as latent constructs, in this study, however, we focus on manifest interpersonal social connections.

In addition, Facebook has a larger population than Twitter. For instance, in Chile—the context of this study—88% and 28% of the online population use Facebook and Twitter, respectively (Latinobarometer, 2013). This difference in size implies that users' offline networks are more likely to be represented online on Facebook than on Twitter. Furthermore, Facebook's algorithm also deploys more prominently and visibly the information that has been shared, commented on, or "liked" by contacts with whom the user has greater affinity and frequent interaction (Bucher, 2012). More often than not, these contacts tend to be people with whom users have stronger ties (Burke & Kraut, 2014). From this Facebook characteristic, one may argue that the information and actions provided by strong ties on Facebook tend to be more visible, prominent, and influential. Conversely, the information posted by weak ties has fewer chances of being visible by users. As a result, it should have weaker effects on people's political behaviors. Simply put, Facebook's algorithm rewards the kinds of content likely to come from strong ties.

Twitter, on the other hand, rewards immediacy over interaction and affinity. The information posted by users appears mostly, if not exclusively, on a real-time basis (i.e., at the time of its publication) and ages rather quickly. At any given time, Twitter's feed ("timeline") will display more content from the sources that tweet more often, such as news companies, political groups, and social organizations. Thus, Twitter users have greater probabilities of encountering more novel and timely information provided by these sources with whom it has weaker ties, at least compared to family and friends. At the same time, users on Twitter have lower chances of stumbling upon information provided by stronger ties, because family and friends—compared to media, nongovernmental organizations (NGOs), and other professional communicators—may post less frequently and, thus, their tweets will be less visible. These different social media characteristics are not a small feat. For instance, previous research has shown these differences may explain why people tend to learn more about political issues in one network over another (Yoo & Gil de Zúñiga, 2014).

Similarly, considering the characteristics of each platform, Valenzuela and colleagues (2014) argued that Twitter affords a more effective communication with weak ties while Facebook's properties afford a more effective communication with strong ties. Put another way, whereas the interest-based network of Twitter is efficient at reaching weak ties, social-based Facebook is efficient at reaching strong ties. Therefore, Twitter influences protest behavior by diffusing more novel information, resources, and possibilities of participation through weaker social ties. Facebook, on the other hand, influences protest behaviors by allowing social pressure and reinforcement among its members, a process needed to adopt a more difficult political behavior such as participation in a protest. If one focuses on information diffusion as a predictor of protest participation, Twitter is well-afforded to promote collective action. At the same time, if one focuses on social pressure as a determinant of political action, Facebook is well-afforded to promote protest behavior.

The previous discussion suggests that strong ties may be easier to maintain on Facebook than on Twitter, whereas weak ties may be more prevalent on Twitter than on Facebook. But why would strong ties spur protest mobilization on Facebook and not on Twitter? And why would weak ties activate citizens to rally in the streets, join protests, and so forth on Twitter, whereas strong ties would not achieve the same influence in this platform? Again, the affordances perspective may provide some clues. For instance, Twitter, up to today, relies on brief and punchy messages to communicate with one's ego-network, as opposed to Facebook, which depends more on lengthier and elaborated messages and discussions (Small, 2011). These communicative features may also explain why the different types of social network connections may also have different effects across platforms. Weak and strong ties will have the same amount of space in Twitter to develop their message. However, on Facebook, individuals usually take the time to read longer and more elaborated messages from people who belong to a closer circle based on the emotional closeness to the message sender than rather just the informational value of it, as it may occur on Twitter (Kaun & Stiernstedt, 2014).

In addition, Facebook's "friending system," and its social reciprocal connection rules and properties (Vitak, Ellison, & Steinfield, 2011), afford a more effective and (politically) consequential communication with people with whom users share stronger, rather homogeneous ties. The most prominent outcome would be that drawing from these interactions users will have more redundant information available at their fingertips as homogeneous and close-knit networks will usually hold similar views and may provide equivalent information (Gil de Zúñiga & Valenzuela, 2011). Conversely, the political participatory and persuasion effects this type of strong-bonding social connections yields is clearly more

robust (Diehl, Weeks, & Gil de Zúñiga, 2016), having a greater direct and mobilizing influence, as users may be "reminded" to partake in a political demonstration by individuals who are closer to them. In addition, this pressure may also be quite effective as these close-knit connections (i.e., family and friends) tend to share similar political views, triggering an easy entry path to political action through reinforcement effects. Likewise, an important trust component is embedded within the resources provided by these close networks. In fact, this level of trust in both the information provided by close people in one's ego-network, as well as the "peer pressure" exerted by a close family member or friend, may well serve as the key factor in informing or persuading a Facebook user to partake in a protest political activity (Rojas, 2014). Alternatively, Twitter may do a better job at making users take advantage of the information that traverses through weak-tie networks (Bode & Dalrymple, 2016). Twitter's unique affordances such as the unstructured and non-reciprocal follower/followee relationship facilitate the rapid spread of novel, diverse, and relevant political information, enabling protest participation and collective action alike.

Because the explanation of how Facebook and Twitter influence political participation through different network ties has not been submitted to an empirical test before, in the current work we examine it with an original survey. To do so, we propose that political information obtained from strong ties and weak ties on Facebook and Twitter mediates the relationship between protest behavior and general uses of Facebook and Twitter. More specifically, we expect the following:

H1: The indirect relationship between general uses of Facebook and protest behavior is stronger for political information obtained from strong ties than weak ties.

H2: The indirect relationship between general uses of Twitter and protest behavior is stronger for political information obtained from weak ties than strong ties.

Thus, both hypotheses predict that social media connect users to both strong and weak social ties, which in turn are more immediate influences on protest behavior. Nevertheless, H1 specifies that, when analyzing the influence of Facebook on protest participation, there is a stronger link between Facebook and strong ties than weak ties. In the case of Twitter, however, H2 predicts that the indirect relationship is more robust with weak ties than strong ties. In what follows, we detail the methods of the study we conducted to examine the empirical currency of the hypotheses.

METHOD

Study Context

The study was conducted in Chile, which represents a good case for the current study for several reasons. As other advanced democracies, Chile has witnessed in the past decade a rise in the number and scope of political protests, especially among youths (Somma, 2017). The climax was 2011, when massive street protests around the issues of education and the environment led commentators to speak of the "Chilean Winter"—in contrast to the country's sunny reputation in the 1990s and early 2000s as the poster child for democracy and economic growth in Latin America (Valenzuela & Arriagada, 2011). Thus, protest behavior has become a central means of political participation for Chilean youths, especially those living in urban areas (Arriagada, Correa, Scherman, & Abarzúa,

2015). At the same time, social media penetration levels are the highest in the region (Hilbert, Vásquez, Halpern, Valenzuela, & Arriagada, 2016, p. 4). This is important for two reasons. First, it increases the relevance of studying the effects of Facebook, Twitter, and other social platforms on users' political behavior as these media are pervasive in users' lives. Second, it allows drawing a more meaningful comparison between social media users who are more likely to protest and those who happen to use social media but are less inclined to engage in this type of political behavior. That is, there is less of an overlap between those who are politically involved with those who have the abilities, opportunities, and motivations to use social media (Xenos & Moy, 2007).

Fieldwork for the study was conducted in July 2014, less than a year after the presidential elections of 2013 that put Michelle Bachelet as President for a new term with 62% of the vote. Notwithstanding her landslide victory, only 33% of those ages 18 to 29 casted a vote in that election (Servel, 2016). In contrast, 46% of those surveyed in the current study participated in a protest activity in the previous 12 months. Simply put, the modal political behavior among youths in Chile is protest behavior rather than electoral behavior.

Data

The data come from the Youth and Participation studies, repeated face-to-face surveys conducted by the School of Journalism at Universidad Diego Portales (UDP) and the polling firm Feedback. The survey has been conducted on an annual basis since 2009 among a representative sample of 1,000 individuals ages 18 to 29 living in Chile's three largest urban areas (Correa, 2016). Chile is mostly an urban country, as 87% of the population lives in urban areas. The three surveyed areas contain 64% of the total adult population and 68% of the urban youths in the country. Thus, it is a broad-based sample from which to draw conclusions (although still limited in its ability to generalize to the country's larger adult population). The cooperation rate of the Youth and Participation studies, using the American Association for Public Opinion Research (AAPOR) 1 method, has varied between 72% and 80%.

The specific survey used here was fielded in November–December 2014, and its questionnaire was developed by the first two authors in conjunction with UDP and Feedback to test—among others—the current study's hypotheses. While the original measures of key variables are explained later, readers may wish to consult the supplemental Appendix for exact wording, variable construction, and descriptive statistics of the remaining control variables. To make the results more representative of the population, all analyses were conducted using a post-stratification weight (although the results are virtually the same when using unweighted data).

Variables

Protest. As with other forms of political participation, protest behavior is becoming more diverse and, consequently, harder to measure adequately (Dalton, Sickle, & Weldon, 2009). It may include signing petitions, joining boycotts, participating in strikes, and engaging in violent activities. For this reason, studies of protest based on surveys usually order protest activities along a continuum with several thresholds of legality. Because illegal protest activities in Chile are rare, protest was measured by asking about participation in activities representing a transition between conventional and unconventional modes of protest, all of them legal. Specifically, respondents were asked whether they had

participated in the following activities in the past 12 months (coded 0 for not engaging, and 1 for engaging): (a) attended public demonstrations (24%), (b) boycotting (21%), (c) joined causes in social media (19%), (d) signed a petition (14%), and (e) attended in-person political forums and debates (12%). All of these items have been used to measure protest behavior in prior studies (see Dalton et al., 2009; Saunders, 2014; Valenzuela, Somma, Scherman, & Arriagada, 2016). A confirmatory factor analysis (included in the supplemental Appendix) confirmed that each of these items loads in a single factor. Thus, a protest index was created by counting the number of affirmative responses to each item (range = 0 to 5, M = .89, SD = 1.25, Kuder-Richardson 20 = .69). As Dylko (2010) noted, this cumulative index taps the breadth of an individual's participation in protest activities.

The frequency distribution of the protest index follows a typical count data distribution (positive integers only, right-skewed). Specifically, 54% of respondents reported no protest activity, 23% engaged in one activity, 10.5% in two activities, and only 12.5% in three or more activities. Thus, all estimations proceeded with negative binomial regression models, which are designed for dependent variables that have a count distribution in which the standard deviation is significantly higher than its mean.

General Social Media Use. Respondents were asked how frequently they used both Facebook and Twitter, separately. Response choices for both platforms were the same: (a) every day, more than once a day; (b) every day, once a day; (c) at least three times a week; (d) once a week; (e) two or three times a month; (f) once a month or less; and (g) never. The response scale was reversed and rescaled, so that it ranged from 0 = never to 1 = every day, more than once a day (Facebook: M = 0.76, SD = 0.36; Twitter: M = 0.12, SD = 0.28).

Information From Strong and Weak Ties. Communication with strong ties and weak ties on social media was measured separately for Facebook and Twitter, as well. For each platform, respondents were asked the following: "With what frequency have you received information about issues of public interest (such as invitations to join a street demonstration or sign a petition) on your account from: (a) people you know personally and are close to you; (b) people you do not know personally?" Item (a) was defined as strong ties, whereas item (b) was defined as weak ties, in line with previous work using similar items to measure strength of ties (e.g., Gil de Zúñiga & Valenzuela, 2011). For these items, responses were coded on a 5-point scale, ranging from 1 = never to 5 = frequently, and rescaled in a 0–1 range (strong ties on Facebook: M = 0.48, SD = 0.39; strong ties on Twitter: M = 0.10, SD = 0.26; weak ties on Facebook: M = 0.30, SD = 0.34; weak ties on Twitter: M = 0.07, SD = 0.20). We included examples of specific types of political information to reduce the possibility of respondents' guessing what "public interest" means, while also tailoring the question to address protest (rather than electoral) forms of protest behavior.[1]

In addition, we included a series of control variables that prior research has found are related to protest behavior and social media use: age, gender, education, political interest, political efficacy, ideology, and exposure to news. For details on how these variables were constructed, consult the supplemental Appendix. To facilitate interpretation, prior to the statistical analysis all control variables were standardized into a 0–1 range, with 0 = minimum sample score and 1 = maximum sample score (e.g., for age, 0 = 18 years old, 1 = 29 years old).

Analytical Strategy

To test the relationships implied in the hypotheses we relied on a path analysis estimated with a generalized structural equation model (GSEM). Contrary to structural equation modeling (SEM), which is designed for continuous variables, GSEM can accommodate binary, ordinal, count, and multinomial responses. This means that we tested whether strong and weak ties (ordinal variables) mediate the relationship between using Facebook and Twitter (ordinal variables) and protest behavior (count variable). For each platform, we can write this model with the following two equations:

$$M = i_1 + aX + fZ + e_M \tag{1}$$

$$Y = i_2 + c'X + bM + gZ + e_Y \tag{2}$$

where i_1 and i_2 are intercepts, e_M and e_Y are errors terms, Z is the set of control variables, and a and c' are the path coefficients estimating the direct effects of X (general Facebook or Twitter use) on M (information from strong or weak ties) and Y (protest), respectively, and b estimates the effect of M on Y. The indirect effect of X on Y is estimated by the product of a and b (ab), using the bias-corrected bootstrap confidence method with 5,000 samples (Hayes, 2013). Stata 14 was used to conduct path analysis estimations with maximum likelihood estimation, which is robust to deviations from normality (MacKinnon, 2008).

RESULTS

The results of this analysis show that general uses of Facebook and Twitter are indirectly related to protest behavior through its association to information received from strong and weak ties. Let us begin with Facebook. Model 1 in Table 1 suggests that there is a positive relationship between general Facebook use and protesting ($c_1 = .321$, $p < .05$), and that this relationship is robust in the presence of various control variables, including education, political interest, ideology, and exposure to the news media. This result, however, does not provide any evidence about the mechanisms that may explain this association. For that, then, we turn to Figure 1, which shows that respondents who use Facebook more frequently are more likely to receive politically mobilizing information from both strong ($a_1 = 1.866$, $p < .001$) and weak ($a_2 = 1.607$, $p < .001$) ties. At the same time, the more frequently they receive mobilizing information from their contacts, the more likely they are to report engagement in protest activities, although this relationship is more robust when these contacts have strong ties ($b_1 = .587$, $p < .001$) than weak ties ($b_2 = .279$, $p = .079$) with the respondents. As shown in Table 2, the bias-corrected bootstrap confidence interval for the indirect relationship of general Facebook use and protest behavior shows that it is entirely above zero for information received from strong ties ($a_1b_1 = 1.095$ [95% CI = .678 to 1.824]). For information received from weak ties, in contrast, the confidence interval includes zero ($a_1b_1 = .448$ [95% CI = −.028 to .935]). Importantly, there was no evidence that general Facebook use was associated to protesting independently of its relationship to information from strong and weak ties ($c_{1'} = .032$, $p = .836$).

We now turn to Twitter. Model 1 in Table 1 shows that there is no direct relationship between frequency of Twitter use and participation in protest activities ($c_2 = .003$, $p = .986$). This result, however, does not prevent the existence of indirect influences of

Table 1
Regressions predicting the number of protest acts in which respondents have participated

	Model 1 b (*SE*)	Model 2 b (*SE*)
General Facebook use	0.321* (0.149)	0.032 (0.154)
General Twitter use	0.003 (0.163)	−0.163 (0.200)
Strong-tie Facebook use		0.587*** (0.154)
Strong-tie Twitter use		0.279 (0.159)
Weak-tie Facebook use		−0.326 (0.281)
Weak-tie Twitter use		0.753** (0.283)
Age	−0.384* (0.156)	−0.294 (0.153)
Female	0.147 (0.098)	0.135 (0.093)
Education	1.554*** (0.328)	1.375*** (0.309)
Political interest	0.883*** (0.142)	0.831*** (0.140)
Political efficacy	−0.057 (0.160)	−0.0721 (0.149)
Left-wing ideology	0.526*** (0.102)	0.523*** (0.099)
Exposure to news (logged)	1.266*** (0.281)	1.134*** (0.259)
Constant	−2.197*** (0.224)	−2.245*** (0.212)
Pseudo R^2	0.087	0.109
AIC	2,410.9	2,346.0
Log likelihood	−1,194.4	−1,158.0

Notes. $N = 995$. Table reports unstandardized negative binomial regression coefficient (b) with robust standard errors (*SE*). All predictor variables were first standardized to a 0–1 scale, with 0 = minimum sample score and 1 = maximum sample score.
  * $p < 0.05$. ** $p < 0.01$. ***$p < 0.001$ (two-tailed).

using the microblogging application. As displayed in the lower half of Figure 1, respondents who frequently use Twitter for various activities are far more likely to receive mobilizing information from their contacts, both strong ($a_3 = 5.467$, $p < .001$) and weak ($a_4 = 4.535$, $p < .001$) ties. Contrary to what happens with Facebook, there is no subsequent relationship with protest participation when this information comes from strong ties ($b_3 = −.326$, $p = .247$). Instead, it is information from weak ties obtained through Twitter that matters for participation ($b_4 = .753$, $p < .01$). Table 2 confirms this last result. The bias-corrected bootstrap confidence interval for the indirect relationship of general Twitter use and protest behavior shows that it is entirely above zero for information received from weak ties ($a_4b_4 = 3.416$ [95% CI = 1.083 to 6.859]), which is not the case for strong ties ($a_3b_3 = 0.448$ [95% CI = −0.028 to 0.935]). Again, there was no evidence that general Twitter use was related with protesting independently of its association to mobilizing information received from strong and weak ties ($c_{2'} = −.163$, $p = .416$).

Taken together, then, the findings are consistent with H1 and H2: Political information obtained from strong ties and weak ties on social media mediates the relationship between protest behavior and general uses of Facebook and Twitter. These indirect relationships, however, operate differently across platforms. Whereas strong ties play a more significant role in channeling the relationship between Facebook use and protest behavior, weak ties matter more for explaining the role of Twitter on political protesting.
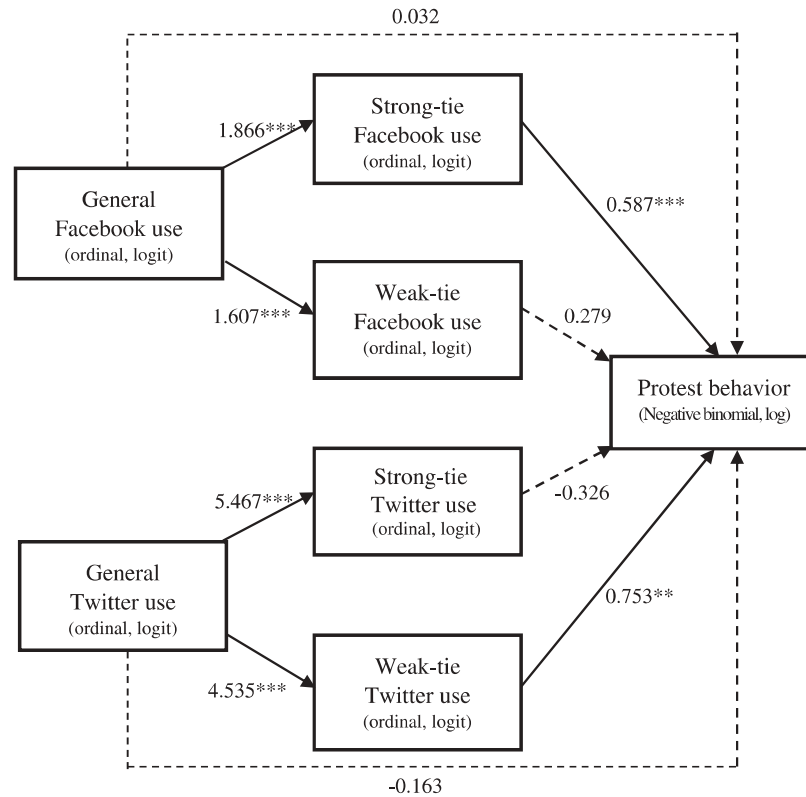
Figure 1. Generalized SEM of protest participation (Study 1).*Notes.* N = 995. Path entries are unstandardized GSEM coefficients. Below each variable name, in parentheses, the family distribution and link function employed are shown. The effects of control variables on endogenous and exogenous variables listed in Table 1 were included in the estimation but not shown here for ease of presentation. Dashed line = the path coefficient is not statistically significant (i.e., $p > .05$, two-tailed). Continuous line = the path coefficient is statistically significant (i.e., $p < .05$, two-tailed). Fit statistics: AIC = 13,832.85, log likelihood: –6,827.423, df = 89.** $p < .01$. *** $p < .001$ (two-tailed).

DISCUSSION

Previous studies in the field of political communication highlight an overall mild positive relationship between social media use and political participation (Boulianne, 2015; Skoric et al., 2016). Although an explanation for this somewhat weak association may be manifold, the most prominent one is the diverse measurements and operationalizations of social media use and political participation. Accordingly, studies have begun to delve into more nuanced connections between different digital platforms, the communication behaviors within them, and participatory activities. For instance, some works show that using social media for specific uses (i.e., news, social interaction, political discussion, self-expression, and so forth) has different effects over political behaviors (e.g., Tang & Lee, 2013; Weeks, Ardèvol-Abreu, & Gil de Zúñiga, 2015). This study seeks to foster this line of research. It contributes to the literature by introducing a much needed analysis of the potential differential effects of social network structures—weak versus strong ties—across two platforms: Facebook, a social network site, and Twitter, a microblogging site.

Based on survey data collected in Chile, the results of the study suggest that both social media platforms have positive effects on mobilizing Chilean citizenry, and fostering

Table 2
Indirect effects from generalized SEM of protest participation

	b(*SE*)	95% bias-corrected bootstrap CI
General Facebook use → Strong-tie Facebook use	1.095 (0.298)	0.678 to 1.824
General Twitter use → Strong-tie Twitter use	−1.781 (1.700)	−5.138 to 1.316
General Facebook use → Weak-tie Facebook use	0.448 (0.272)	−0.028 to 0.935
General Twitter use → Weak-tie Twitter use	3.416 (1.431)	1.083 to 6.859

Notes. N = 995. Table reports unstandardized coefficients (b), standard errors (*SE*) and bias-corrected bootstrap confidence intervals (CI) based on 5,000 bootstrap samples for the indirect effects of general Facebook and Twitter use.

political protest behaviors. However, these relationships emerge from distinct social network structures within these social media platforms. On the one hand, results indicate that on Facebook, strong-tie connections are conductive to further protest behavior, while exposure to weak ties conveys a much weaker influence on this type of political activity. Conversely, weak-tie connections in Twitter seem to lead people to engage in protest behavior; interactions with strong ties on this medium have no discernible impact. Overall, we believe all the stringent tests lend empirical support to the theoretical significance of this study. Social network structures are not equal, and their effects across social media platforms are correspondingly unique and distinct.

The underlying mechanisms behind these findings, we argued, are related to the unique affordances of Facebook and Twitter. These affordances suggest, first, that strong ties may be easier to maintain on Facebook than on Twitter, whereas the opposite is true for weak ties. Second, different affordances may explain why strong ties are more conducive to protest participation on Facebook and not on Twitter, whereas weak ties may mobilize young citizens on Twitter. For instance, on Twitter, weak and strong ties will have the same amount of space to transmit a message and call for protesting. On Facebook, in contrast, the emotional closeness to the message sender may have a greater impact on the receiver, who may ponder more on both the informational and affective value of it. To be clear, the current study does not test these affordances; it tests the type of network accessed through Facebook and Twitter, and how they matter for explaining variations in protest behavior. Consequently, we leave for future research a more direct test of which specific affordances explain why strong ties have a larger effect on the participatory potential of Facebook, while weak ties have a larger effect on the participatory potential of Twitter.

As in any study, there are some limitations that merit additional research. Our findings were obtained using a cross-sectional survey, which has limited ability to test for causal-effect relationships. Multiwave panel surveys and experimental designs could address the causality quandary in better fashion. Furthermore, we do not have qualitative data on how people specifically use Facebook and Twitter, and we lack the specificity that a content analysis study would yield in terms of the messages citizens produce across platforms. Similarly, gathering massive amounts of trace data on these media may also shed a different light on the relationships found here (see, e.g., special issues on the subject in the *Annals of the American Academy of Political and Social Science*, 2015; and in *Social*

Science Computer Review, 2017). Another limitation is that these findings relate to various protest behaviors, which may elicit a partial picture of citizens' full repertoire of political participation acts. However, it is also an advantage because it enables us to be more specific in our findings and avoid the theoretical "costs" of employing aggregate, multi-dimensional measures of participation (Dylko, 2010). Still, tests of the proposed model with other participatory activities may be warranted. Another limitation revolves around the scope and generalizable nature of the data employed in this study. The data gathered in this study relied on urban young adults in Chile, which may be interpreted as a distant representation of this population segment across Chile. This is to some extent true. However, about 87% of the total population in Chile live in urban areas and the survey was purposively conducted in the three largest urban conglomerations of the nation: Gran Santiago, Gran Valparaíso, and Gran Concepción, comprising 68% of the total urban youths in the country. Last, as much as we have made an effort to highlight the differential effects of both strong and weak ties, further theorizing about what these constructs are today in the context of social media will be needed as the field continues to move forward. For instance, the literature usually establishes a strong-tie connection with neighbors and coworkers, despite the fact that this relationship may be ambivalent. Some of these ties might be strong or weak depending on specific cases. Social media and information and communication technologies do nothing else but continue to blur these somewhat traditional physical and socially constructed relationships (see Gil de Zúñiga, 2017).

Despite all these limitations, this study highlights the importance of studying political behaviors across different social media platforms. Specifically, results of the study emphasized the need for a more systematic and consistent research agenda focusing on multi-platform, multi-effect environments, seeking to shed a brighter light on the differential effects these social media platforms may have over today's modern political realm.

Notes

1. Following international trends (e.g., Duggan, Ellison, Lampe, Lenhart, & Madden, 2015), the frequency of use is skewed for both Facebook and Twitter, which may be problematic when employing statistical techniques that assume normality (see histograms in the supplemental Appendix). Considering the cutoff point of ±2.0 as the acceptable range of skewness for a "normal" distribution, the three Facebook measures are "normal," but the three Twitter measures are "skewed." Consequently, we replicated the analysis using three different approaches: (a) transformation (i.e., using the square root function, to make the distribution of the Twitter measures more symmetrical); (b) dichotomization via median split; and (c) categorization (i.e., creating indicator variables for each level of the Twitter measures). In all three cases, the results are the same in substantive terms to those reported in the main text. Thus, the analyses reported here employ the original measures.

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