WhatsApp, Polarization, and Non-Conventional Political Participation: Chile and Colombia Before the Social Outbursts of 2019.

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Abstract:

Chile and Colombia are two South American countries with political and economic similarities that, during 2019, faced strong social outbursts, which translated into massive street protests and the weakening of their governments. Using data collected in the period immediately prior to the start of this social unrest, this study seeks to establish the role played by strong-tied social media--which are generally homogeneous, formed by close people, and with a high potential for influencing their members--in three phenomena associated with political conflict: (a) perceived political polarization, (b) affective polarization, and (c) non-conventional political participation. To estimate this influence, information collected through surveys in Chile in 2011 and Colombia in 2018 was used within the framework of the Comparative National Elections project. In both countries, probabilistic samples were employed to do face-to-face interviews with samples of over 1,100 people. In both countries, the results show that the use of social media with strong ties, specifically WhatsApp, tends to be related to two of the studied phenomena: perceived political polarization and non-conventional participation. An interaction is also observed between WhatsApp use and political ideology that amplifies the degree of perceived political polarization, affective polarization, and participation in one or both of the countries studied. We conclude by arguing that this dual phenomenon of polarization and participation can be problematic for democracy, since polarized groups (or groups that have the perception that there is ideological

polarization in the political elite) tend to consider the position of the rest of the citizens to be illegitimate, thus undermining collective problem-solving.

Keywords

affective polarization; Chile; Colombia; non-conventional political participation; political polarization; social media; WhatsApp

Issue

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Full Text:

1. Introduction

2019 was a year when protests rocked Chile and Colombia. At the time that massive demonstrations emerged, the two countries shared certain socio-political features. Despite these countries having experienced several decades of uninterrupted democratic life, well-established liberal economic systems, and relatively high rankings in democracy quality evaluations (The Economist Intelligence Unit, 2019), social discontent fueled by inequality, lack of opportunities, and the exclusion of disadvantaged social groups (United Nations, 2017), resulted in the largest public demonstrations to take place in the last decade. Also in both countries, center-right governments with low public opinion approval levels were mostly unable to process the discontent within their institutional frameworks.

A central aspect that is credited for unleashing such demonstrations and unrest was the enormous prevailing inequality in both countries. Although neither of them is among the poorest countries in Latin America, their inequality levels are strikingly high. In 2019, according to the World Bank (2022), the Gini Index for Colombia was 0.51, the highest of the countries of the OECD (2022) and the second in the region after Brazil. In the case of Chile, this indicator reached 0.5 in 2017, also one of the highest in the OECD, and above the average inequality level in Latin America (Ministry of Social Development, 2020).

Despite these common backgrounds, the social movements in these countries raised their own demands. In Chile, the replacement of the Political Constitution of 1980, established during the Augusto Pinochet regime, became one of the protestors' main objectives. In Colombia, stopping violence, reducing state corruption, and withdrawing a government bill to raise taxes were the main issues at hand. In both countries, the movements were characterized by great diversity, being carried out mostly by young people and by the constant appearance of specific demands. During the first weeks of protests, the dynamics of the movements in both countries were similar as well, resulting in clashes with the police, injured demonstrators, people killed during the protests, and a large number of detainees (Documenta, 2022; "Manifestaciones en Chile," 2019). In both places, critical transport infrastructure was destroyed: In Santiago, 118 metro stations were damaged or unable to operate, and in Colombia, 138 stations of the TransMilenio bus system were affected.

Previous literature has shown that social media plays an increasingly important role in protest and non-conventional political participation forms (Bail et al., 2018; Gil de Zuniga et al., 2021). In this study, we seek to understand how certain types of social media use may relate to polarization and unrest. We are particularly interested in exploring how different social media platforms (Facebook, Twitter, and WhatsApp) may have differential effects on political polarization levels (affective and perceived) and mobilization based on their affordances and uses. We argue that social media platforms that are more reliant on strong social ties will disproportionately affect these political outcomes.

The underlying notion is that media platforms such as WhatsApp privilege strong-tie interactions, that is, exchanges with people that one has important connections to, are usually like oneself (homogeneous social ties), and thus have a higher likelihood of influencing. Therefore, we expect that WhatsApp use, compared to other social media, will have a stronger effect on affective political polarization and forms of non-conventional political participation. While not posing directional hypotheses, our study also inquires if WhatsApp use is related to perceived political polarization and tests its potential interactions with political ideology to explore if certain groups "benefit" more from these three outcomes.

Our research seeks to help fill the gap that exists in studies regarding the impact of social media on perceived political polarization and affective

political polarization. In addition, we are (a) expanding research to other contexts, (b) analyzing different social media platforms side by side, and (c) considering the types of ties that characterize the interaction that characterize different social media platforms.

Table 1. Chile: Covariates correlation (Pearson coefficient).

	Political interest	Media news frequency	WhatsApp use frequency	WhatsApp use frequency * left
Political interest	1	0.032	.092**	.153**
Media news use		1	-.080**	-0.047
WhatsApp use			1	.203**
WhatsApp use * left				1

Note: **p < .01.

We undertake this two-country comparison since, in addition to similarities in the political context, Chile and Colombia are characterized by having comparable levels of social media penetration and use. In Chile, the most popular platforms are WhatsApp (84%), Facebook (78%), YouTube (75%), and Instagram (60%), followed by Twitter (31%; see Newman et al., 2021). In Colombia, the penetration of social media is WhatsApp (86%), Facebook (84%), YouTube (79%), and Instagram (60%), followed by Twitter (30%; see Newman et al., 2021). In both countries, the most used social media today is WhatsApp, an instant app characterized by two features, especially relevant in the Latin American context: They provide contact with strong ties (i.e familiar and close people) and are increasingly important as a source of news and political informal conversations (Valenzuela et al., 2021). Finding that platforms based on their social affordances are related to levels ofpolitical polarization and mobilization has profound implications for democratic systems' future, as it becomes increasingly difficult to offer negotiated solutions to problems in highly polarized and mobilized contexts. If in addition, as our research findings suggest, these relations are enhanced for certain parts of the political ideological spectrum, this might offer clues to practitioners on how to intervene in different political contexts to ameliorate these processes.

The data for this research was collected shortly before the social outbreaks of 2019. Both surveys are part of the Comparative National Election project and were applied in 2017 (Chile) and 2018 (Colombia). We argue that the timing of these data collections is ideal, as the elements resulting in massive

protests were already in play. As Tarrow (1995) said, protest cycles begin with a high conflict stage, which later spreads to different geographical areas and sectors of society.

Our results suggest that the use of social media platforms that privilege strong tie interactions, specifically WhatsApp, is related to perceived political polarization and non-conventional participation. Interactions are also observed between WhatsApp use and political ideology that in certain cases amplify the degree of perceived political polarization, affective polarization, and participation.

2. Polarization and Social Media

2.1. Polarization

The impact of social media use on polarization attitudes has gained scholarly attention, driven by concerns of the formation of so-called "echo chambers" on citizen communications. These echo chambers are highly homogeneous spaces of interaction and informational access, formed by a systematic selection of its members, whether consciously or not, based on political ideas and preferences. Homogeneous communication networks, compared with those that expose audiences to more diverse arguments and opinions, tend to reinforce beliefs and opinions, pushing ideological positions among people to the extreme (Bail et al., 2018; Stroud, 2010). In this manner, if homophily levels are increased in political discussions, dialogue with those who think differently is made more difficult (Arceneaux & Johnson, 2015) and polarization follows.

As polarization has been conceptualized in different ways, it is important to define clearly the phenomena under consideration. Traditionally, political polarization was understood as increased divergence in policy preferences by citizens. That is, a polarized society would be one where there are few people in the center and many people at the extremes of any given issue (Wilson, 2006). In this conceptualization of polarization as diverging issue positions, partisan media and/or homogenous sources of information were considered a source of political polarization. One problem with this conceptualization has been that despite the extremity of various positions, most people consider their views to be at the center and thus many people claim centrist positions.

Two promising ways in which polarization has been reconceptualized include perceived polarization and affective polarization. The idea of perceived polarization is that regardless of actual levels of polarization, individuals can perceive their society as polarized, and political parties to be further apart than they are, and this may have consequences in, for example, their likelihood of wanting to engage people who do not think like them in political conversation (Yang et al., 2016).

The underlying logic of perceived polarization is that the confrontational way in which the media cover politics, or extreme examples of "the other side" can make citizens believe that there are high degrees of polarization (Yang et al., 2016). In operational terms, perceived political polarization has been measured as the absolute distance that people place the main political parties on a left/right ideological scale (Hetherington & Roush, 2013).

However, polarization is not limited to beliefs about others' opinions and how extreme they might be. A second reconceptualization of polarization views it as an affective phenomenon, that is, the level of like or dislike that people hold towards those that have different views or belong to different political parties (Iyengar et al., 2012). While there have been different ways to measure affective polarization, such as by asking people to rate other partisans concerning certain attributes (i.e., intelligence, or if they are caring or not; see Rojas & Valenzuela, 2019), the most common way has been to ask citizens to gauge leaders of parties or partisans on feeling thermometers that capture "the extent to which partisans view each other as a disliked out-group" (Iyengar et al., 2012, p. 1).

Recent research has found a positive relationship between social media use and affective polarization (Lelkes, 2016). Through two experiments, Suhay et al. (2018) found that exposure to critical information about political opponents on social networks increases the levels of affective polarization. However, the relationship between social network use and political polarization is not completely clear, since polarization levels have increased even among people with fewer possibilities to access the internet and social media (Tucker et al., 2018). In this same line, the relationship between social media and polarization, or the echo chamber effect, has been questioned by recent research carried out in European countries and the United States (Garret, 2017; Vaccari & Valeriani, 2021). Finally, high levels of polarization can translate into high levels of incivility on newspaper websites (Muddiman & Stroud, 2017).

In a recent meta-analysis about the relationship between social media and political polarization, Kubin and von Sikorski (2021) show that the empirical findings support a positive relation between pro-attitudinal media use and polarization in the vast majority of the 121 studies analyzed (Kubin & von Sikorski, 2021, p. 194). However, the authors question that these studies have focused almost exclusively on Twitter, that they mostly use data collected in the United States, that some research shows social media impact on polarization is low, and that only selective exposure to content is usually measured. For these reasons they conclude: "The true effect of social media exposure on political polarization remains unclear" (Kubin & von Sikorski, 2021, p. 195).

Table 2. Colombia: Covariates correlation (Pearson coefficient).

	Political interest	Media news frequency	WhatsApp use frequency	WhatsApp use frequency * left
Political interest	1	.256**	0.045	.209**
Media news use		1	.146**	0.017
WhatsApp use			1	.166**
WhatsApp use * left				1

Note: **p < .01.

2.2. The Strength of Ties Perspective on Social Influence

In this context of homophily levels and incivility linked to polarization, it is important to consider an attribute of social interactions: the strength of ties between people interacting on social media. The concept was popularized by Granovetter (1973) with an innovative description of society as a complex network drawn up by a multitude of micro-networks of "strong ties," the closest and most intimate groups of individuals, that are interconnected by "weak ties," the relationships with a less intense relation (Coleman, 1988).

Numerous studies have shown that considering the strength of ties contributes to a better understanding of social networks' political influence (Bello & Rolfe, 2014). However, there are controversies regarding which are the most influential networks, something that could be explained by different theoretical mechanisms explaining how social environments impact their members' attitudes and behaviors (e.g., Ladini et al., 2020).

When analyzing social networks as access routes to political information, strong and weak networks make differentiated contributions. For a common citizen, access to the necessary information to form an opinion and make decisions can be overwhelming. Given that politics is a subject in which some citizens show little interest, people would be especially willing to use their social networks as a "shortcut" to access political information. Asking family, friends, or acquaintances saves time, and also refers to sources perceived as more reliable than mass media and messages from politicians (Huckfeldt et al., 2004).

In this line, strong networks can play a central role by concentrating on the people citizens trust the most (Ladini et al., 2020). However, it is usually in weak ties that people find novel and more diverse information, as network diversity is negatively associated with the strength of its ties (Granovetter, 1973).

The power of social pressure seems to be particularly relevant for political behaviors because, as Sinclair (2012, p. 1) states, "when friends and family talk about politics, they refer to strictly personal norms of civic behavior, and in close personal relationships it is difficult to disagree about such beliefs." Tabletop discussions on public issues thus socialize elements that are more significant and lasting than the information or opinions that are shared.

Following this line of reasoning, recent studies have shown that the nature of the ties in communication environments is closely linked to digital technologies (or specific social media) used by the same individuals. Twitter is an application where people can follow an almost infinite number of others, without the approval filter of the owner of each account. This tends to connect with weaker and more diverse ties. Facebook, in contrast, requires reciprocal approval to connect individuals, a condition that does not limit the network of each owner to strong ties but is connected with the inclusion of a proportion of stronger relations (Valenzuela et al., 2018). Finally, WhatsApp has been described as the most controlled, closed, and intimate massive social network, since communication requires a mobile number and this information is more generally shared with closer ties (Chan, 2018).

The positive influence of strong ties in polarization and non-conventional political participation can be explained by the characteristics of these links: They are associated with an increase in social capital and allow a greater

amount of support to be delivered to people (Wellman & Wortley, 1990). According to Kramer et al. (2021), compared to weak ties, strong ties generated in social networks provide both emotional and informational support.

2.3. Strong Ties and WhatsApp in Latin America

Among social media, the one that is clearly characterized by maintaining strong ties between its members is WhatsApp, since it is made up of communication channels usually made up of close people and with a potential influence among its members. Over the last years, WhatsApp has gained attention in the political communication field as a new "semi-public space," due to its increasing usage and its unique features which provides new ways of access to news information and interpersonal political discussion. Indeed, WhatsApp in most countries is the dominant instant messaging app, particularly in Latin American, Southeast Asian, and Southern European countries. Currently, WhatsApp usage in Latin America has grown beyond that of Facebook (Newman et al., 2021), notably so in Colombia (86%) and Chile (84%).

WhatsApp allows all age cohorts users to interact, compartmentalize, and maintain their strong ties (i.e family, friends, colleagues), interacting privately with individual contacts or clearly pre-defined groups, in a context of permanent connections which could afford social support and emotional involvement (Chan, 2018). It enables contact in more intimate, closed, and controlled environments (Gil de Zuniga et al., 2021). These affordances of WhatsApp would fit well with Latin American social capital configuration, based on strong ties with familiar and closed relationships (Valenzuela et al., 2008).

However, as Valenzuela et al. (2021) have established recently, by examining the Chilean case, and Matassi et al. (2019) by examining the Argentinian one, Latin American users are adopting WhatsApp not only for social purposes but also to inform and maintain political conversations.

Table 3. Determinants of affective polarization.

	Chile		Colombia	
Constant	1.169**	1.432**	1388	1588
	(0.442)	(0.455)	(0.892)	(0.904)
Woman (=1)	0.346*	0.344*	−0.246	−0.244
	(0.151)	(0.150)	(0.216)	(0.216)
Age (years)	0.026***	0.026***	0.017*	0.017*
	(0.005)	(0.005)	(0.008)	(0.008)
Secondary education (ref. primary)	0.037	−0.006	0.555	0.529
	(0.245)	(0.246)	(0.497)	(0.497)
Technical education	−0.002	−0.009	0.748	0.711
	(0.290)	(0.290)	(0.520)	(0.520)
University education	0.290	0.279	0.986	0.956
	(0.273)	(0.273)	(0.515)	(0.515)
Positive perception economy	0.918***	0.902***	−0.291	−0.307
	(0.202)	(0.202)	(0.398)	(0.398)
Ideology: Left (ref. NA)	1.811***	0.733	2.754***	1268
	(0.238)	(0.513)	(0.586)	−1248
Ideology: Center	−0.115	−0.112	0.064	0.087
	(0.206)	(0.206)	(0.523)	(0.523)
Ideology: Right	2.984***	2.993***	0.881	0.905
	(0.272)	(0.272)	(0.556)	(0.556)
Political interest	0.265***	0.265***	0.389**	0.376**
	(0.080)	(0.080)	(0.122)	(0.122)

As Reuters Institute described in a recent report (Newman et al., 2021), WhatsApp is one of the most used apps as a source of news in Latin America, especially in Colombia (45%), Brazil (43%), Chile, and Argentina (36% in both countries). In general terms, Facebook continues to be the main social media source of information, but users are more likely to take part in private discussions about news through WhatsApp (Newman et al., 2021). Indeed, literature has shown that WhatsApp enables not only a more fluid conversational setting, but also a more multimodal space--where exchanges can include texts, audio, videos, images, and/or links (Matassi et al., 2019).

The latter is especially relevant in Latin American countries such as Chile and Colombia, since given the disaffection of their citizenry with political institutions and disappointment with how democracy is working (Pew Research Center, 2017) many turn to the strong social networks embodied through WhatsApp to discuss politics and corrective collective action. A more incidental and personal communication, provided by an instant message app

such as WhatsApp, could facilitate more contact with political news and topics, in the manner evidenced by Valenzuela et al. (2021).

Moreover, some recent literature has focused on studying the association between consuming information and discussing politics via mobile instant messaging platforms and political engagement. In general terms, the research evidence points towards an interpersonal digital discussion about political issues having a positive impact on public life (Vaccari & Valeriani, 2021). As Vermeer et al. (2021, p. 3) claim, "instant messaging apps have changed the ways in which people talk about politics."

In this regard, new evidence has shown political conversations through WhatsApp could have a positive influence on activism, protest, and expressive forms of political participation, and a subtler impact or mixed evidence on conventional participation (i.e., voting intention and political participation) in various countries (Gil de Zuniga et al., 2021; Valenzuela et al., 2021).

However, potential negative effects are less researched. In the current complex media ecology, the convergence of mass interpersonal communication, including via digital platforms, could foster political participation but could also contribute to undesirable reactions such as political extremity and distrust (Shah et al., 2017). In this sense, interactions on WhatsApp "may not be immune" to this type of risk (Gil de Zuniga et al., 2021, p. 15) and some studies show that WhatsApp may be related to forms of mis/disinformation (de Freitas Melo et al., 2019) and hate speech (Binder et al., 2020). Valenzuela et al. (2021) did not find evidence to link WhatsApp usage with extreme positions. However, this research only measured levels of polarization of WhatsApp members, but not their perception of the ideological placement of the main political parties and the affective polarization regarding party leaders.

The literature has established that offline and online informal network conversations could influence political attitudes in general. However, the main point here is whether WhatsApp usage could affect one specific type of attitude: the perception of polarization regarding the political system. Based on the revised literature, it makes sense to predict that:

H1: Social media that allow establishing strong ties between their users, such as WhatsApp, have a stronger relationship with affective polarization.
RQ1: Is the relation between perceived political polarization and the

use of social media characterized by strong ties interaction more significant (WhatsApp)?

Several studies have shown the positive relationship between ideology and polarization. Using data from the World Values Surveys corresponding to 70 countries and 80% of the world population, Dalton (2006) established that the ideological dimension left/right has a strong relation with polarization, especially in developing countries. In the same way, Kashima et al. (2021) showed that ideological engagement is positively related to higher levels of polarization and that the use of social media tends to increase and accelerate polarization. In addition, a survey experiment conducted by Rogowski and Sutherland (2016) concluded that ideology fuels affective polarization.

In addition, different studies have shown that the ideological position of people is related to the probability that they participate in non-conventional political participation, seeking changes in the social order (Buechler, 2000; Klandermans, 2004; Zald, 2000). For this reason, it is relevant to study if certain ideological groups will be more likely to use a strong tie network app in ways that result in increased polarization. Thus, we pose the following research questions:

RQ2: Is there an interaction between strong-tie social media use and political ideology with respect to affective polarization?
RQ3: Is there an interaction between strong-tie social media use and political ideology with respect to perceived political polarization?

3. Social Media and Non-Conventional Political Participation

Citizen activism is crucial in democratic regimes (Verba et al., 1995, p. 1). Activism is part of non-institutional political participation. In general terms, political participation can be understood as any activity that can affect political decisions (Van Deth, 2014). Although voting is the most usual form of political participation, there are a variety of ways to influence politics (Dalton, 2006). Protests, blocking streets, boycotting, and community activities are a few activities that citizens do to express their discomfort (Theocharis & Van Deth, 2018).



Research suggests that social media use relates to citizen involvement in politics. A recent meta-analysis conducted by Boulianne and Theocharis (2020) concluded that there is a positive relationship between social media use and political participation. Social networks allow people to participate in numerous forms of offline non-conventional political participation and protest (Theocharis & Van Deth, 2018). Social media have different affordances that facilitate political participation. They allow access to a large number of contacts and diminish the costs and time spent on the mass distribution of information and organization of protest strategies. Social media also promote the creation of groups of people with similar interests (Hargittai, 2007) and, at the same time, the interaction between people who do not know each other but have similar ideas. Access to political information through social media can increase political engagement, even when people are only incidentally exposed to such information (Vaccari & Valeriani, 2021).

The relation between social media and political participation and non-conventional political participation is contingent, i.e., it does not operate in all cases in the same way. Studies have shown that different platforms, like Facebook, Twitter, WhatsApp, or others, can have different levels of relevance. How people use social media (information consumption, entertainment, creating content, talking with other users, among others) may also have different relevance.

Social networks are part of what Bennett and Segerberg (2013) call the logic of connective action that characterizes modern democracies. This means that people can organize themselves autonomously, outside traditional structures such as political parties. This is especially relevant in countries such as Chile and Colombia, where political parties have a low level of trust among citizens.

After reviewing the association between social media and different forms of participation, we will now analyze the relationship between these platforms

and political and non-conventional political participation by posing the following hypothesis and research question:

H2: Social media that allow users to establish strong ties, such as WhatsApp, have a stronger relationship with non-conventional political participation.
RQ4: Is there an interaction between strong-tie social media use and political ideology with respect to non-conventional political participation? Do certain groups benefit disproportionately from social media affordances in their mobilizing efforts?

4. Methodology

4.1. Data Sample

To test our hypothesis, we use surveys of the Comparative National Elections project conducted in Chile and Colombia.

In Chile, the survey was applied between November and December 2011, immediately after the first round of the 2011 presidential election (in 2018). The study used a probabilistic sample of 1,625 people aged 18 and over, living in the three main national urban centers: Metropolitan Santiago, Valparaiso, and Concepcion. These areas contain 62% of the Chilean population. Questionnaires were applied face to face, with a 25% response level. The survey was conducted by the Diego Portales University and Feedback, a professional polling firm.

In Colombia, the study was applied between June and July 2018, to a probabilistic sample of 1,118 people aged 18 and over living in 10 regions of the country. Questionnaires were applied face-to-face, with a 30% response level. The survey was conducted by the University of Wisconsin, the Externado de Colombia University, and the polling firm Deproyectos.

Both surveys were carried out in urban areas. In Chile, 88% of the population lives in urban areas, while in Colombia this figure is 15%. The urban nature of the population in both surveys allows for an adequate comparison, but most importantly as the rural population represents a very small fraction of the population in both countries, we argue that their exclusion does not affect the results of this study, yet future studies may establish whether a different model applies to rural populations.

4.2. Measures

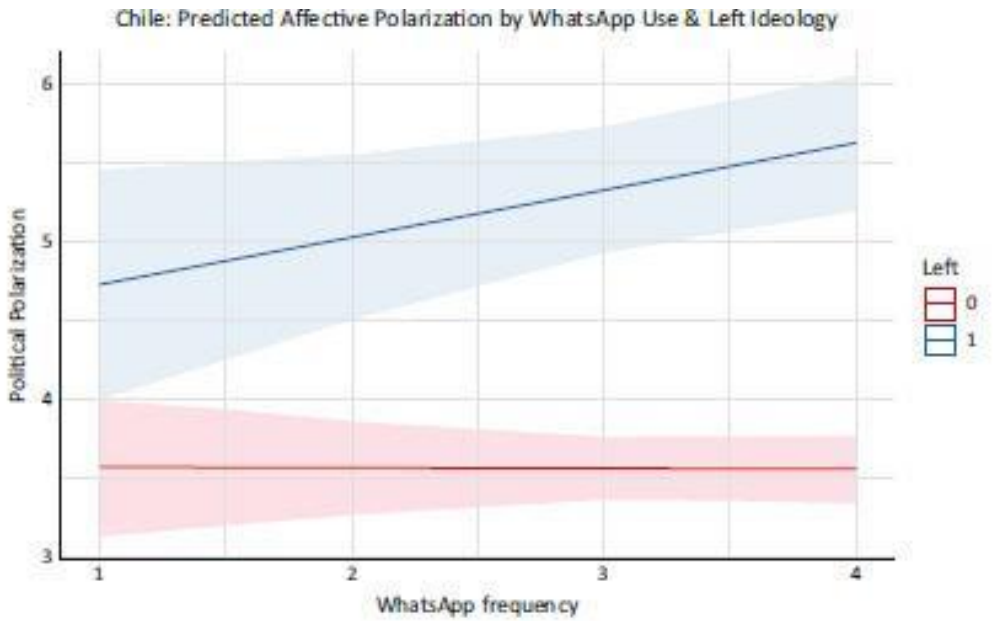


Figure 1. Predict values of affective polarization in Chile according to WhatsApp frequency and political position (left).

4.2.1. Dependent Variables

The variable perceived political polarization corresponds to the average of the absolute difference of individuals' evaluations regarding the main government party and the main opposition political party on a scale from 1 to 10, where 1 is "left" and 10 is "right." To the extent that the value of perceived political polarization is larger, this means that there is a perception that political parties are more polarized. On the other hand, if the value is close to 0, the perception among citizens is that the polarization between the parties in their country is low.

The perceived political polarization score is calculated as:

perceived political polarization =- [[SIGMA]|[X.sub.1] - [X.sub.2]|/n]

where [X.sub.1] is the evaluation of the main leftist party, [X.sub.2] is the evaluation of the main rightist party, and n is the sample size. In Chile, the final score was 5.4 (SD = 3.1). In Colombia it was 4.1 (SD = 3.4).

In Chile, the main political party on the left axis was the Socialist Party (M = 2.9) and on the right side was the Renovacion Nacional (M = 1.8). In

Colombia, the main leftist party was Polo Democratico (M = 3.51) and the most important party on the right was Partido de la U. Two criteria were used to establish the largest left and right parties: (a) the results of the parliamentary elections in Chile in 2011 and in Colombia in 2018 and (b) the preferences that respondents have for political parties. Both results were coincident. The seats obtained were not used as an indicator because in non-parliamentary systems what is usually recognized is the percentage of votes obtained by the parties or their level of adherence in polls.

For perceived political polarization we used a measure that has been widely employed in the past in multinational studies (see, for example, Singer, 2016; Torcal & Magalhaes, 2022; Yang et al., 2016). This measure is detailed in the literature review prepared by Tucker et al. (2018, p. 8). Fiorina (2016) utilized a methodology very similar to measure polarization in the US Congress. We follow this literature and contend that it captures the perception of ideological polarization regarding the most important political parties in a country.

However, it is true that this measure (originally designed to study polarization in two-party or parliamentary political systems) has some drawbacks when used in presidential and multi-party systems, such as those in Chile and Colombia. The measure employed simplifies the political space and leaves out relevant parties, but despite this limitation, we believe that for generalizability it is better to use established measures.

For the variable affective polarization, we calculated the absolute difference in evaluations for the leader of the government and the leader of the opposition party, on a scale where 1 corresponds to "the least favorable" and 10 to "the most favorable":

affective polarization = [[SIGMA]|[X.sub.1] - [X.sub.2]|/n]

where [X.sub.1] is the score of the leader of the government, [X.sub.2] is the score of the opposition leader, and n is the sample size. In Chile, the score was 4.2 (SD = 3.2). In Colombia it was 4.9 (SD = 3.4).

Table 4. Determinants of perceived political polarization.

	Chile		Colombia	
Constant	3.644***	3.960***	0.520	0.503
	(0.559)	(0.576)	-1360	-1370
Woman (=1)	0.108	0.112	-0.166	-0.166
	(0.178)	(0.178)	(0.240)	(0.240)
Age (years)	0.030***	0.030***	0.027**	0.027**
	(0.006)	(0.006)	(0.009)	(0.009)
Secondary education (ref. primary)	0.082	0.013	1183	1184
	(0.315)	(0.316)	(0.609)	(0.610)
Technical education	0.615	0.593	1.303*	1.305*
	(0.361)	(0.360)	(0.628)	(0.629)
University education	0.994**	0.971**	2.050**	2.051**
	(0.338)	(0.338)	(0.626)	(0.627)
Positive perception economy	-0.310	-0.336	0.037	0.039
	(0.232)	(0.232)	(0.438)	(0.439)
Ideology: Left (ref. NA)	-0.652*	-1.844**	0.677	0.812
	(0.314)	(0.613)	-1047	-1617
Ideology: Center	-0.478	-0.481	-0.708	-0.712
	(0.280)	(0.280)	-1008	-1009
Ideology: Right	-0.193	-0.188	0.506	0.502
	(0.341)	(0.340)	-1027	-1028
Political interest	-0.098	-0.099	0.120	0.122
	(0.094)	(0.093)	(0.136)	(0.137)
Media news use	-0.141*	-0.152*	0.087	0.087
	(0.072)	(0.072)	(0.112)	(0.113)
Facebook	0.226	0.216	-0.245	-0.244
	(0.230)	(0.230)	(0.358)	(0.358)
Twitter	-0.598*	-0.606*	0.498	0.498
	(0.285)	(0.284)	(0.310)	(0.311)
WhatsApp use	0.206*	0.123	0.718***	0.725***
	(0.090)	(0.097)	(0.182)	(0.195)
Left * WhatsApp use		0.369*		-0.056
		(0.163)		(0.510)
N	1,175	1,175	770	770
Log Likelihood	-3,030.381	-3,027.788	-1,998.053	-1,998.046
AIC	6,090.763	6,087.576	4,026.105	4,028.093

Notes: *p< .05; **p< .01; ***p< .001.

For our third dependent variable, non-conventional political participation, we aggregated the number of political and social activities that people participated in at least once in the last 12 months. In Chile, we considered in the variable 10 different activities (protests, signing a petition addressed to

an authority, defending the environment, fighting for sexual minorities' rights, etc.). In Colombia, we considered nine similar activities for the variable (Chile: M = 1.0, SD = 1.7; Colombia: M = 1.4, SD = 1.9).

4.2.2. Independent Variables

In both countries we used a scale for WhatsApp use, where 1 is "minimum possible" use and 4 is "maximum use" (Chile: M = 3.2, SD = 1.3; Colombia: M = 3.38, SD = 0.7).

We used a binary variable to assess whether the respondent has or does not have a Twitter account (Chile: Yes = 10.5%; Colombia: Yes = 16%).

Likewise, we used a binary variable again to establish whether respondents have do not have a Facebook account (Chile: Yes = 60.9%; Colombia: Yes = 72.4%).

4.2.3. Control Variables

To control for media news use and the impact of news media consumption on the dependent variables, we incorporated the informative use of media: television, radio, newspapers, and the internet. In Chile and Colombia, we utilized a scale where 0 is the minimum use and 5 is the maximum use (Chile: TV, M = 2.5, SD = 1.3; radio, M = 2.2, SD = 1.7; newspapers, M = 1.8, SD = 1.5; internet, M = 1.9, SD = 1.6; Colombia: TV, M = 3.6, SD = 1.5; radio, M = 1.8, SD = 1.8; newspapers, M = 1.9, SD = 1.7; internet, M = 2.2, SD = 1.9). Due to the high correlation that existed in the consumption of news among some of these media, especially in Chile, we chose to create a single variable that will gather the consumption of news from these outlets. In both countries, an index was created by averaging the consumption of each of the four aforementioned media (Chile: M = 1.1, SD = 1.22, Cronbach's Alpha = 0.8; Colombia: M = 2.4, SD = 1.12, Cronbach's Alpha = 0.6). This measure is used in other research, such as Gil de Zuniga et al. (2021).

For political and economic variables we first incorporated a variable of political interest on a scale between 0 and 3, where 0 is the lowest possible interest and 3 is the highest possible interest (Chile: M = 1.0, SD = 1.1; Colombia: M = 1.4, SD = .9). We also used respondents' ideology identification. The original question asked respondents to place-rank themselves on the left/right scale, where 1 was left and 10 was right. Since in the Chilean case approximately 23% of the sample was not classified within

the scale and did not answer the question, we opted to recode it into four categories:

* Left (Chile = 22%; Colombia = 13.6%)

* Enter (Chile = 42.5%; Colombia = 58.6%)

* Right (Chile = 12.4%; Colombia = 21.2%)

* Without political identification (Chile = 23.1%, Colombia = 6.6%)

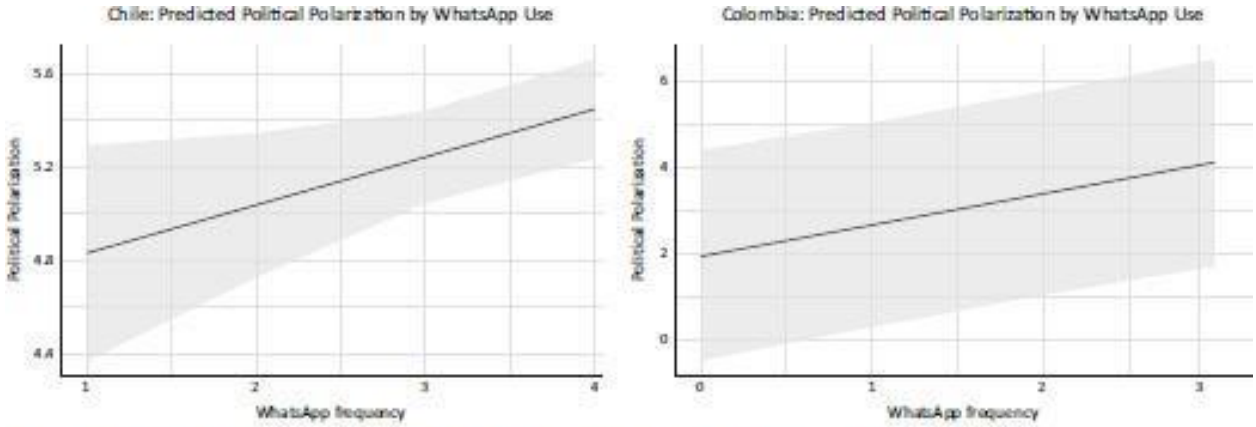


Figure 2. Predicted values of perceived political polarization according to WhatsApp usage frequency.

Additionally, we include a question about the perception of the general economic situation in the country. It is a binary variable where 1 means having a positive evaluation and 0 means not having a positive evaluation (Chile = 16.6%; Colombia = 7.2%).

Finally, we incorporated three sociodemographic variables in the model: Gender (Women Chile = 52.3%; Women Colombia = 53.2%), age (Chile: M = 44.3, SD = 17.4; Colombia: M = 42.5, SD = 15.8), and education. The distribution of education levels is as follows: primary education (Chile = 12.9%; Colombia = 10.9%), secondary education (Chile = 44.5%; Colombia = 41.3%), technical education (Chile = 16.2%; Colombia = 19.7%), and university education (Chile = 26.4%; Colombia = 28.1%).

4.3. Statistical Approach

To test the hypothesis and research questions of this study we employed generalized linear models because our dependent variables are linear but do not meet the assumptions required to perform a traditional linear regression, with the OLS method. We use general linear models to calculate the regression analyses and plot the interactions of interest.

To show the validity of our regression models, the covariates correlation in Chile and Colombia are reported below. The analyses show that variables do not present collinearity problems (see Tables 1 and 2).

5. Results

We first explored and compared the determinants of affective polarization (H1). Table 3 shows that none of the social media measured in this study are related to affective polarization in Chile or Colombia. This means that there is no evidence to support H1. However, in Chile, the interaction between WhatsApp usage frequency and a leftist political position has a positive relationship with affective polarization (RQ2). This finding can be seen in Table 3 and Figure 1. In Colombia, this variable does not turn out to be significant. Other important variables to explain affective polarization are age, political position, and interest in politics.

Unlike our observations on affective polarization, our results also show that strong tie networks, such as those provided by WhatsApp, are the ones with a stronger relationship with perceived political polarization (see Table 4 and Figure 2). In Chile, this finding is bolstered by the negative relation between having a Twitter account, which is a social media outlet characterized by its weak ties, and the dependent variable. These results allow us to answer RQ1 affirmatively. Another important finding is the result of the interaction between WhatsApp use frequency and having leftist political positions: Table 4 and Figure 3 show clearly in the Colombian case how the interaction between these variables has a positive relationship with perceived political polarization. Having a leftist political position acts as a moderator that increases the probability that people who frequently use WhatsApp perceive a greater ideological distance between political leaders (RQ3). The most interesting result among the control variables, similar for both countries, is that belonging to the highest educated sectors is a predictor of perceiving greater political polarization.

The results of Table 5 partially support H2, since only WhatsApp has a positive and significant relationship with social and non-conventional political participation, while those of Facebook and Twitter are not significant (see also Figure 4). This result is in line with previous research in the area (Valenzuela et al., 2021). Finally, the answer to RQ4 is not conclusive. In Colombia, the interaction between WhatsApp use and having a leftist political position increases non-conventional political participation levels, but in Chile the same result is not registered. The interaction between WhatsApp use and a Leftist ideology in Colombia is shown in Figure 5.

6. Discussion and Conclusion

Our results, taken as a whole, show the importance of WhatsApp usage in two Latin American countries for political purposes.

The overall pattern suggests that WhatsApp usage frequency is related to both polarization and political mobilization, with some particularities such as the effects being stronger for certain segments of the population or the type of polarization varying by country. Not surprisingly, there are also interesting differences. In Colombia, traditional media appears to be a mobilizing agent, but not a polarizing one, while in Chile radio news, in particular, seems to be a demobilizing and polarizing force.

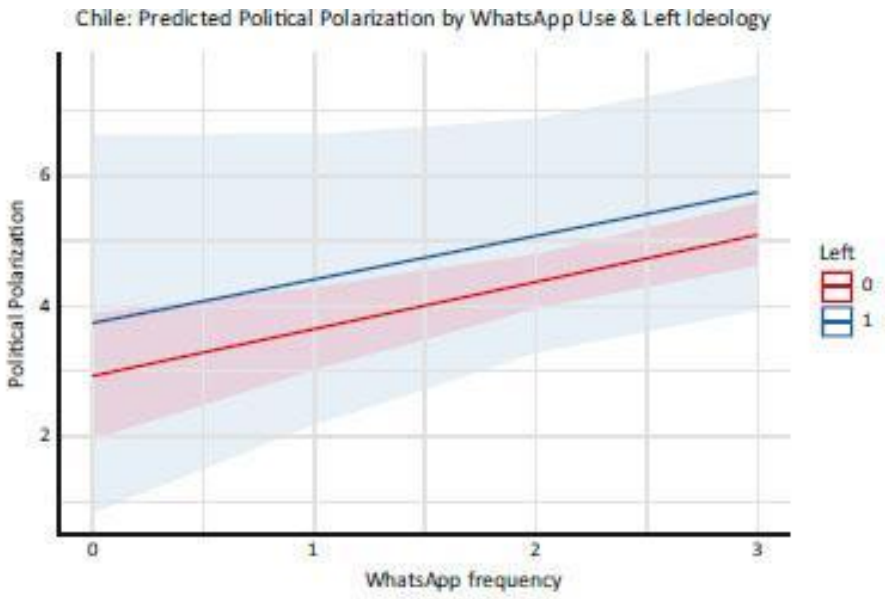


Figure 3. Predicted values of perceived political polarization in Colombia according to WhatsApp usage frequency and political position (left).

While certain social media platforms, like Facebook, do not seem to contribute to perceived polarization or mobilization in either country. Twitter for the most part remains unrelated (except for perceived polarization in Chile where it seems to play a depolarizing role). WhatsApp, a chat application, does contribute. We argue that this has to do with network characteristics that are more commonly deployed in certain platforms.

While Facebook and Twitter are particularly useful in maintaining weak ties or being exposed to diverse information, WhatsApp is especially suitable for strong tie interaction. Our results underscore then the logic of strong tie homophily that leads to both polarization and mobilization. Our argument is not techno-deterministic but is rather based on a social structure of strong ties whose interactions are facilitated by specific platform affordances resulting in a mobilized, albeit polarized, individual.

This dual phenomenon of mobilization and polarization is problematic for democracy. In the past increased participation has been mostly conceptualized as a positive outcome. But when it is coupled with polarization this can undermine democracy itself, as the "rules of the game" come into question among polarized groups that consider their rivals illegitimate. Not surprisingly, allegations of fraud regarding electoral results are on the rise.

The information that navigates these strong tie networks may also prove to be problematic, as there are fewer possibilities of correcting mis/disinformation by impartial arbiters. Motivated reasoning processes may instead result in further reinforcement of polarized views.

Despite the limitations of our study, which examines only the urban population in two countries, uses a cross-sectional design that limits causal claims, is not able to assess the actual content of the exchanges that happen in these networks, and measures polarization focusing on the leaders of the two main political movements, we provide evidence of the relations between WhatsApp use and a mobilized polarization. In doing so we offer a compelling case of the importance of studying strong tie interactions, particularly those facilitated by chat applications. Future studies that can explore more closely what gets exchanged by participants in strong tie networks will go a long way in sorting out issues of causality, and can potentially show even stronger results, as our own findings do not allow distinctions between networks that are more homophilous and those that are less so within the same platform.

Our measure of affective polarization is widely used in recent political communication research (see, for example, Iyengar et al., 2012; Lee et al., in press; Lelkes, 2016; Stroud, 2010) as political leaders overshadow the parties themselves, in a world in which ideology means less and group belonging emerges as a prevalent galvanizing force. We argue that a leader-based approach to measuring polarization is ideal to calculate emotional polarization, yet it might simplify the political space by leaving out relevant parties. This potential limitation of our study needs future research to compare whether a party-based approach would generate different results

In our study, the platform stands in for the type of tie, which of course is a limitation of our study. Future research needs to examine variance in tie strength within different platforms since it would make sense that for someone who uses Facebook only to connect with strong ties we could expect similar usage results to what we find here. Future research also needs to examine carefully whether these findings can be replicated in other contexts. While we argue that our findings are generalizable to other societies in which we are activated by strong network ties, there could be elements of the Latin American context that may limit generalizability. In the future, it will also be necessary to estimate whether other variables, such as political discussions and the specific people with whom conversations are

held on WhatsApp, play a mediating role between the use of this social media and the different forms of polarization.

Despite these limitations, we are convinced that advancing our understanding of strong tie network interactions and their relation to mobilized polarization is critical if democracies worldwide are to resist authoritarian temptations, which are so in vogue these days. Without citizens carefully assessing different options to face collective action problems, democracy withers, and current chat apps do not seem well suited for the task of revitalizing democracy.

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Conflict of Interests

The authors declare no conflict of interests.

Table 5. Determinants of non-conventional political participation.

	Chile		Colombia	
Constant	0.219	0.202	-0.605	-0.344
	(0.352)	(0.365)	(0.750)	(0.750)
Woman (=1)	-0.110	-0.111	0.192	0.188
	(0.107)	(0.108)	(0.133)	(0.132)
Age (years)	0.0001	0.0001	0.003	0.003
	(0.004)	(0.004)	(0.005)	(0.005)
Secondary education (ref. primary)	-0.186	-0.183	-0.041	-0.059
	(0.193)	(0.195)	(0.336)	(0.334)
Technical education	-0.194	-0.192	0.336	0.308
	(0.221)	(0.221)	(0.347)	(0.345)
University education	-0.275	-0.273	0.481	0.468
	(0.207)	(0.208)	(0.348)	(0.346)
Positive perception economy	0.382**	0.383**	0.303	0.277
	(0.141)	(0.141)	(0.245)	(0.244)
Ideology: Left (ref. NA)	0.582**	0.635	-0.060	-2.121*
	(0.201)	(0.375)	(0.580)	(0.887)
Ideology: Center	0.301	0.301	-0.557	-0.499
	(0.179)	(0.179)	(0.554)	(0.552)
Ideology: Right	0.231	0.230	-0.564	-0.503
	(0.222)	(0.223)	(0.565)	(0.563)
Political interest	0.337***	0.337***	0.347***	0.323***
	(0.057)	(0.057)	(0.076)	(0.076)
Media news use	-0.031	-0.031	0.408***	0.418***
	(0.044)	(0.044)	(0.062)	(0.062)
Facebook	-0.255	-0.254	-0.083	-0.103
	(0.141)	(0.141)	(0.199)	(0.198)
Twitter	0.113	0.113	0.374*	0.376*
	(0.169)	(0.169)	(0.173)	(0.172)
WhatsApp use	0.210***	0.214***	0.203*	0.086
	(0.055)	(0.060)	(0.102)	(0.109)
Perceived political polarization	-0.013	-0.012	-0.016	-0.016
	(0.018)	(0.018)	(0.020)	(0.020)
Affective polarization	-0.035	-0.035	0.027	0.025
	(0.019)	(0.019)	(0.021)	(0.021)
Left * WhatsApp freq.		-0.017		0.856**
		(0.098)		(0.280)
N	1,134	1,134	762	762
Log Likelihood	-2,329.829	-2,329.815	-1,520.185	-1,515.419
AIC	4,693.658	4,695.629	3,074.369	3,066.838

Notes: *p < .05; **p< .01; ***p < .001.

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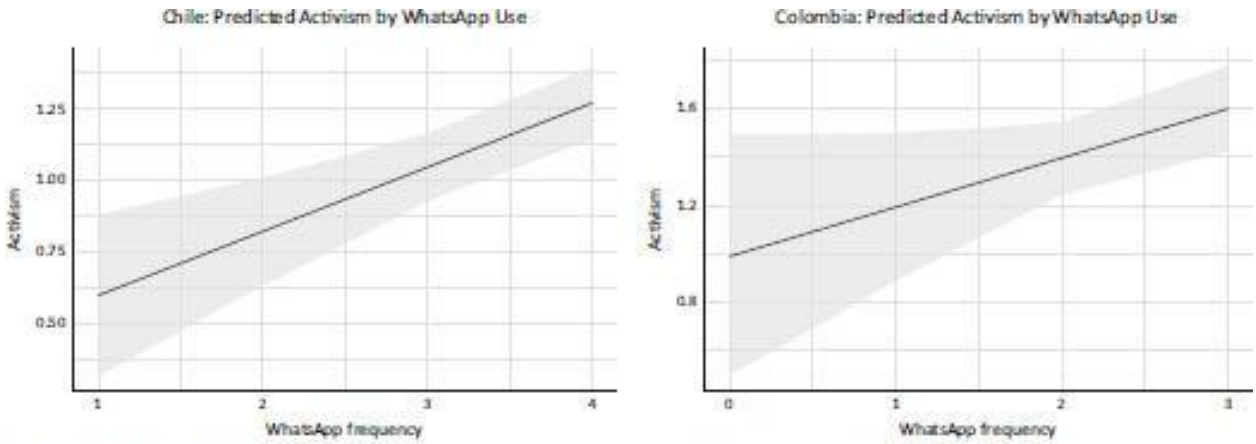


Figure 4. Predicted values of non-conventional political participation according to WhatsApp usage frequency.

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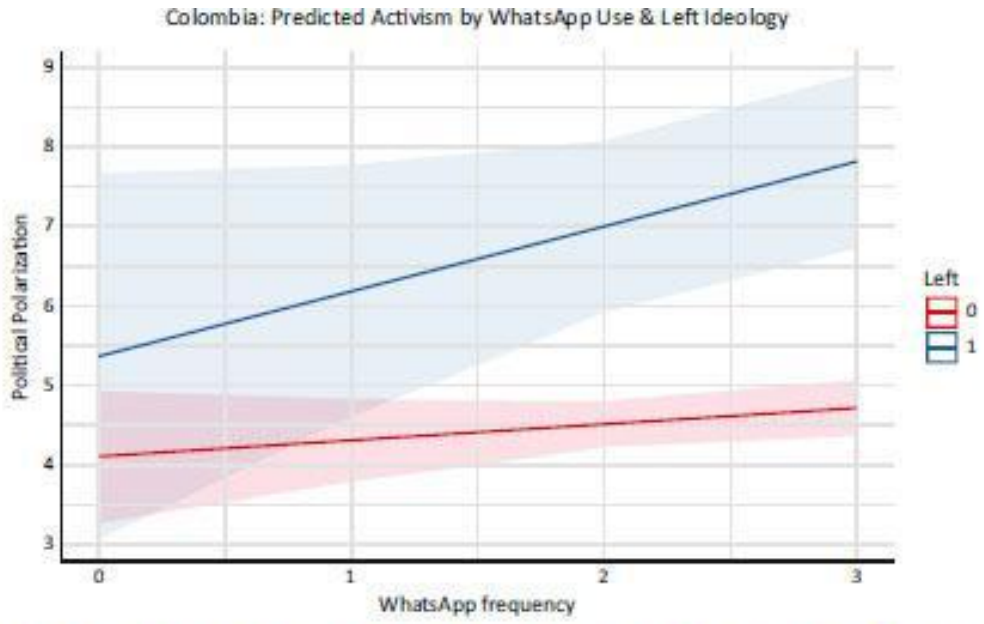


Figure 5. Predicted values of non-conventional political participation in Colombia according to WhatsApp frequency and political position (left).

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Table 1. Chile: Covariates correlation (Pearson coefficient).

	Political interest	Media news frequency	WhatsApp use frequency left	WhatsApp use frequency (*)
Political interest	1	0.032	.092 (**)	.153 (**)
Media news use		1	-.080 (**)	-0.047
WhatsApp use left			1	.203 (**)
WhatsApp use *				1

Note: (**) p < .01.

Table 2. Colombia: Covariates correlation (Pearson coefficient).

	Political interest	Media news frequency	WhatsApp use frequency	WhatsApp use frequency * left
Political interest	1	.256 (**)	0.045	.209 (**)
Media news use		1	.146 (**)	0.017
WhatsApp use frequency			1	.166 (**)
WhatsApp use * left				1

Note: (**) p < .01.

Table 3. Determinants of affective polarization.

	Chile
Constant	1.169 (**)
	(0.442)
Woman (=1)	0.346 (*)
	(0.151)
Age (years)	0.026 (***)
	(0.005)
Secondary education (ref. primary)	0.037
	(0.245)
Technical education	-0.002
	(0.290)
University education	0.290
	(0.273)
Positive perception economy	0.918 (***)
	(0.202)
Ideology: Left (ref. NA)	1.811 (***)
	(0.238)
Ideology: Center	-0.115
	(0.206)
Ideology: Right	2.984 (***)
	(0.272)
Political interest	0.265 (***)
	(0.080)
Media news use	-0.092
	(0.062)
Facebook	0.391
	(0.202)
Twitter	0.003
	(0.249)
WhatsApp	0.073

	Chile
Constant	1.432 (**)
	(0.455)
Woman (=1)	0.344 (*)
	(0.150)
Age (years)	0.026 (***)
	(0.005)
Secondary education (ref. primary)	-0.006
	(0.246)
Technical education	-0.009
	(0.290)
University education	0.279
	(0.273)
Positive perception economy	0.902 (***)
	(0.202)
Ideology: Left (ref. NA)	0.733
	(0.513)
Ideology: Center	-0.112
	(0.206)
Ideology: Right	2.993 (***)
	(0.272)
Political interest	0.265 (***)
	(0.080)
Media news use	-0.100
	(0.062)
Facebook	0.381
	(0.202)
Twitter	0.0005
	(0.248)
WhatsApp	0.002

use		
	(0.078)	(0.084)
Left (*) WhatsApp use		0.334 (*)
		(0.140)
N	1,527	1,527
Log Likelihood	-3,880.03	-3,877.190
AIC	7,790.070	7,786.381
	Colombia	
Constant	1388	1588
	(0.892)	(0.904)
Woman (=1)	-0.246	-0.244
	(0.216)	(0.216)
Age (years)	0.017 (*)	0.017 (*)
	(0.008)	(0.008)
Secondary education (ref. primary)	0.555	0.529
	(0.497)	(0.497)
Technical education	0.748	0.711
	(0.520)	(0.520)
University education	0.986	0.956
	(0.515)	(0.515)
Positive perception economy	-0.291	-0.307
	(0.398)	(0.398)
Ideology: Left (ref. NA)	2.754 (***)	1268
	(0.586)	-1248
Ideology: Center	0.064	0.087
	(0.523)	(0.523)
Ideology: Right	0.881	0.905
	(0.556)	(0.556)
Political interest	0.389 (**)	0.376 (**)
	(0.122)	(0.122)
Media news use	0.064	0.070
	(0.102)	(0.102)
Facebook	0.396	0.382
	(0.312)	(0.312)
Twitter	0.154	0.158
	(0.287)	(0.287)
WhatsApp use	0.282	0.203
	(0.160)	(0.170)
Left (*) WhatsApp use		0.610

		(0.452)
N	887	887
Log Likelihood	-2,268.190	-2,267.264
AIC	4,566.380	4,566.528

Note: (*) p < .05; (**) p < .01; (***) p < .001.

Table 4. Determinants of perceived political polarization.

	Chile	
Constant	3.644 (***)	3.960 (***)
	(0.559)	(0.516)
Woman (=1)	0.108	0.112
	(0.118)	(0.118)
Age (years)	0.030 (***)	0.030 (***)
	(0.006)	(0.006)
Secondary education (ref. primary)	0.082	0.013
	(0.315)	(0.316)
Technical education	0.615	0.593
	(0.361)	(0.360)
University education	0.994 (**)	0.911 (**)
	(0.338)	(0.338)
Positive perception economy	-0.310	-0.336
	(0.232)	(0.232)
Ideology: Left (ref. NA)	-0.652 (*)	-1.844 (**)
	(0.314)	(0.613)
Ideology: Center	-0.418	-0.481
	(0.280)	(0.280)
Ideology: Right	-0.193	-0.188
	(0.341)	(0.340)
Political interest	-0.098	-0.099
	(0.094)	(0.093)
Media news use	-0.141 (*)	-0.152 (*)
	(0.012)	(0.012)
Facebook	0.226	0.216
	(0.230)	(0.230)
Twitter	-0.598 (*)	-0.606 (*)
	(0.285)	(0.284)
WhatsApp use	0.206 (*)	0.123
	(0.090)	(0.091)
Left (*) WhatsApp use		0.369 (*)
		(0.163)
N	1,115	1,115

Log Likelihood	-3,030.381	-3,021.188
AIC	6,090.163	6,081.516
	Colombia	
Constant	0.520	0.503
	-1360	-1310
Woman (=1)	-0.166	-0.166
	(0.240)	(0.240)
Age (years)	0.021 (**)	0.021 (**)
	(0.009)	(0.009)
Secondary education (ref. primary)	1183	1184
	(0.609)	(0.610)
Technical education	1.303 (*)	1.305 (*)
	(0.628)	(0.629)
University education	2.050 (**)	2.051 (**)
	(0.626)	(0.621)
Positive perception economy	0.031	0.039
	(0.438)	(0.439)
Ideology: Left (ref. NA)	0.611	0.812
	-1041	-1611
Ideology: Center	-0.108	-0.112
	-1008	-1009
Ideology: Right	0.506	0.502
	-1021	-1028
Political interest	0.120	0.122
	(0.136)	(0.131)
Media news use	0.081	0.081
	(0.112)	(0.113)
Facebook	-0.245	-0.244
	(0.358)	(0.358)
Twitter	0.498	0.498
	(0.310)	(0.311)
WhatsApp use	0.118 (***)	0.125 (***)
	(0.182)	(0.195)
Left (*) WhatsApp use		-0.056
		(0.510)
N	110	110
Log Likelihood	-1,998.053	-1,998.046
AIC	4,026.105	4,028.093

Notes: (*) p < .05; (**) p < .01; (***) p < .001.

Table 5. Determinants of non-conventional political participation.

	Chile	
Constant	0.219	0.202
	(0.352)	(0.365)
Woman (=1)	-0.110	-0.111
	(0.107)	(0.108)
Age (years)	0.0001	0.0001
	(0.004)	(0.004)
Secondary education (ref. primary)	-0.186	-0.183
	(0.193)	(0.195)
Technical education	-0.194	-0.192
	(0.221)	(0.221)
University education	-0.275	-0.273
	(0.207)	(0.208)
Positive perception economy	0.382 (**)	0.383 (**)
	(0.141)	(0.141)
Ideology: Left (ref. NA)	0.582 (**)	0.635
	(0.201)	(0.375)
Ideology: Center	0.301	0.301
	(0.179)	(0.179)
Ideology: Right	0.231	0.230
	(0.222)	(0.223)
Political interest	0.337 (***)	0.337 (***)
	(0.057)	(0.057)
Media news use	-0.031	-0.031
	(0.044)	(0.044)
Facebook	-0.255	-0.254
	(0.141)	(0.141)
Twitter	0.113	0.113
	(0.169)	(0.169)
WhatsApp use	0.210 (***)	0.214 (***)
	(0.055)	(0.060)
Perceived political polarization	-0.013	-0.012
	(0.018)	(0.018)
Affective polarization	-0.035	-0.035
	(0.019)	(0.019)
Left (*) WhatsApp freq.		-0.017

		(0.098)
N	1,134	1,134
Log Likelihood	-2,329.829	-2,329.815
AIC	4,693.658	4,695.629
	Colombia	
Constant	-0.605	-0.344
	(0.750)	(0.750)
Woman (=1)	0.192	0.188
	(0.133)	(0.132)
Age (years)	0.003	0.003
	(0.005)	(0.005)
Secondary education (ref. primary)	-0.041	-0.059
	(0.336)	(0.334)
Technical education	0.336	0.308
	(0.347)	(0.345)
University education	0.481	0.468
	(0.348)	(0.346)
Positive perception economy	0.303	0.277
	(0.245)	(0.244)
Ideology: Left (ref. NA)	-0.060	-2.121 (*)
	(0.580)	(0.887)
Ideology: Center	-0.557	-0.499
	(0.554)	(0.552)
Ideology: Right	-0.564	-0.503
	(0.565)	(0.563)
Political interest	0.347 (***)	0.323 (***)
	(0.076)	(0.076)
Media news use	0.408 (***)	0.418 (***)
	(0.062)	(0.062)
Facebook	-0.083	-0.103
	(0.199)	(0.198)
Twitter	0.374 (*)	0.376 (*)
	(0.173)	(0.172)
WhatsApp use	0.203 (*)	0.086
	(0.102)	(0.109)
Perceived political polarization	-0.016	-0.016
	(0.020)	(0.020)
Affective polarization	0.027	0.025

	(0.021)	(0.021)
Left (*)		0.856 (**)
WhatsApp freq.		
		(0.280)
N	762	762
Log Likelihood	-1,520.185	-1,515.419
AIC	3,074.369	3,066.838

Notes: (*) p < .05; (**) p < .01; (***) p < .001.



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