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Santa Barbara

Campaign spheres in Latin America:
How institutions affect digital media in presidential elections

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Political Science

by

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January 2018

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Dedication

In memory of the students who lost their lives in Isla Vista, on May 23 2014, praying that God brings peace and heals their families, friends, this great community and country.

Let there be light!

To my mother, who always wondered what would be her life if she hadn`t dropped Graduate School to raise her children.

To my wife and daughter, who were together with me in this journey.

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Some might think it is a truism when graduate students write on their dissertations how much they owe to their graduate advisors for the satisfaction of getting the job done. But I couldn`t be more honest when I recognize the support, guidance, ethics and hard work of my advisor, Professor Bruce Bimber. I wouldn`t imagine this dissertation being done without his directions, comments and corrections, always delivered with kindness and generosity.

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Brandão Junior, F. What Constitution-makers think about participation and the Brazilian Constitution. 2017, *under review.*

Abstract

Campaign spheres in Latin America:

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by

Francisco Brandão

The changes in the media environment brought up by digital media are expected to have profound effects on politics, from citizen's participation to elites' strategies. However, the literature has paid little attention to systemic and contextual factors that might constrain or limit the possibilities for collective action in this new communication context. Using a structural approach, I analyze presidential election campaigns' use of Twitter in a study of 16 Latin American countries between 2012 and 2015 – Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Panama, Paraguay, Uruguay and Venezuela. To demonstrate the quality of the data set, I show that forecasting models with Twitter Volume can preview election results in most of the cases, and even give more accurate forecasting than polling data in Colombia, Costa Rica, Ecuador and Mexico. In order to fill the shortage of theoretical models on social media, I propose a new concept of campaign spheres for understanding the linkage between social media messages and public opinion associated with campaigns. Campaign spheres are

sections of the public sphere. Instead of forming public opinion through rational deliberation, a campaign sphere mostly reproduces a candidate's political slogans and symbols to mobilize opinion leaders. While the public sphere is inclusive, a campaign sphere has clear boundaries dividing those who support the campaign and those who oppose it. Institutions and social context do affect campaign spheres in Latin American presidential elections. Party systems can predict how intensely people participate, while incumbency increases the number of participants, mainly in left-wing campaign spheres. Two-round systems had a negative impact on the participation of right-wing campaign spheres, and also demonstrated a small negative effect on the prestige of all candidates. Yet challengers had more prestige than incumbents – an effect that was stronger in plurality system countries and after the elections. This research gives a perspective on the constrained context for communication change in Latin America, which can be extended and generalized to other new democracies.

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1. Introduction

The study of election campaigns and how political parties organize and compete for public opinion has always been a major topic in political communication research. In recent decades, scholarship has developed greatly, together with the ongoing changes in the media environment. The information revolution sprung from digital media impacts processes and strategies in elections, campaigning and collective action, with consequences for the very identity and structure of political organizations. Because of the transformations in the ways candidates connect with voters, and governments with their constituencies – which is to say, how the state interacts with society –, one can expect new relationships based on the differential costs and resources available in a new system categorized by media fragmentation and information abundance.

How will parties and political organizations adapt to the changed media environment? On one hand, there is the possibility of more decentralized associations, weakening the organizational structures of the mass media era that could be described as highly hierarchical and institutionalized in a position of dominance, in which the information flow was rigid and one-way oriented (Bimber, 2003). This decentralization could arise from the assumptions that (1) collective action does not necessarily require substantial staff, money or organization on

the part of the organizers; (2) organizational boundaries are often permeable and not sharply defined; (3) informal association and affiliation are important and sometimes replace formal membership; (4) collective action is often narrowly focused on subsets of members or affiliates, according to issues and political events (Bimber, 2003; Bennett & Segerberg, 2013; Karpf, 2012). On the other hand, changes in political organizations might be constrained by the dynamics of the mass media system and formal institutions. These forces would lead to maintenance of an information regime with a centralized, extremely resource-dependent system of market-driven organizations (Bimber, 2003).

Scholarship on these issues is thriving, with new normative and empirical theories about the political consequences of the new media environment, an increasing number of publications in the field, and innovations on methods associated with the huge quantities of data that are created or become available through people's use of digital media. However, the literature has mostly ignored the influence of institutions and media systems on the strategies and actions of parties and political organizations in the context of digital media. This omission is probably explained by the reliance of scholars on single-case studies, mostly devoted to works on advanced Western Democracies, particularly the United States. Cross-national studies on new media campaigns are extremely rare (Kluver, Jankowski, Foot & Schneider, 2007; Vaccari, 2013).

Only a comparative analysis can fully and properly explore how different media systems and institutions affect the way political parties adapt to digital media in their campaigns. A political system is a system of action, in which norms or institutions affect empirically observable behavior, with a certain interdependence and equilibrium between the

interactions of units of analysis (Almond, 1956). Therefore, a significant change in any roles in action or behavioral terms affects the others, and thereby changes the system as a whole.

As Almond (1956) exemplifies, changes in the role of political communication have transformed the electoral process, the behavior of parties, the legislature, the executive. The emergence of pressure groups produced certain changes in the party system and in the administrative and legislative processes, while the rapid expansion of executive bureaucracy was one of the factors that triggered off the development of legislative bureaucracy and pressure group bureaucracy. “It suggests the usefulness of thinking at the level of the system and its interdependence rather than in terms of discrete phenomena or only limited bilateral relationships, or relationships occurring only within the formal-legal role structure.” (Almond, 1956)

Addressing the topic of cross-national variation in campaigns' approach to digital media, I analyze presidential election campaigns' use of Twitter in a study of 16 Latin American countries between 2012 and 2015 – Dominican Republic, Mexico, Ecuador, Venezuela, Paraguay, Chile, Honduras, Costa Rica, El Salvador, Panamá, Colombia, Bolivia, Brazil, Uruguay, Guatemala and Argentina.

Presidential systems in Latin America offer an interesting field for the study of political communication for several reasons. The elections share a high level of information and visibility. The accessibility of information is a significant variable in memory-based models of public opinion, as described by Zaller (1992). The political systems in the region are mainly candidate-centered, instead of party-oriented. This particularity might promote the use of digital media in political campaigns, as Chadwick (2006) observed in the comparison

between the candidate-centered United States electoral system and the party-oriented United Kingdom. Also, Latin American countries present similar levels of demographic, social and economic conditions, but with different party and electoral systems – a perfect condition for a comparative study on the role of institutions over web campaigns[1].

Another important feature is the relatively large share of youth population in Latin American countries. Young people, who were born into digital age, are more likely to be on line than the general population (International Telecommunication Union, 2013). Also, Latin America has a high level of telecommunication and human capital infrastructure development and is among the leading regions in providing government information, products and services by the Internet (United Nations, 2012).

The problem motivating this study is explaining variation in how candidates employ social media, namely Twitter. Specifically, I address variation along two main dimensions (dependent variables): (1) participation of actors engaged in a political campaign and (2) prestige of a candidate within her network. Participation is measured both on how many participate and how much (how strongly or intensely) they participate.

Research approach

[1] Almond (1956) observes that every political system is embedded in a particular pattern of orientations to political action, which he refers as political culture. The concept of political culture, as defined by Almond, does not coincide with a given political system or society. "Patterns of orientation to politics may, and usually do, extend beyond the boundaries of political systems", observes Almond (1956). The author would argue that the United States, England and sereral of the Commonwealth countries have a common political culture, but are separate and different kinds of political systems. He would also state that countries of continental Western Europe, while constituting individual political systems, include several different political cultures which extend beyond their borders – which is to say, they are political systems with fragmented political cultures. Although Latin American countries have very unique political systems, they do share patterns of orientations to political action. This could be observed when these countries transitioned to authoritarian regimes, or democratized, at the same time. Latin American countries have also shared synchronous turns to populist, left-wing or right-wing governments.

I use a structural approach, analyzing social behavior and institutions by the relations among concrete social entities – persons and organizations – which are situated in varied contexts. For that, I apply social network analysis, assuming that interpersonal ties matter, as do ties among organizations, because they transmit behavior, attitudes and information (Carrington et al., 2005; De Nooy et al., 2011; Freeman, 2004; Wasserman & Faust, 1994). Therefore, the main goal in this approach is to detect and interpret patterns of social ties among actors. In Latin American presidential elections, the interactions between the candidate, the party and constituents must be considered together with the content of the messages that are being discussed.

I work with two of the main research topics on social network analysis: cohesion and ranking. It is assumed that large information networks, such as those on Twitter and other social media platforms, have low density and fewer ties between people, leading to less cohesive structures. The general hypothesis in social network analysis is that people who match on social characteristics will interact more often, and people who interact regularly will foster a common attitude or identity (De Nooy et al., 2011). That is why the first concern, when analyzing networks in Latin American presidential elections, should be to verify participation in different contexts, here taken as independent variables – party system, electoral system, incumbency, party ideology, country size and economic performance.

In social ranking, I assume that information networks on Twitter have asymmetric relations. In actions such as following someone, retweeting or mentioning another Twitter handle in a post, people who receive many choices and reciprocate few choices are perceived

to have more prestige. Patterns of asymmetric choices may reveal the stratification of a group into a hierarchy of layers (De Nooy et al., 2011). To verify such patterns, I measure prestige of candidates within their networks, verifying how this dependent variable relates to institutions and contextual variables – party system, electoral system, incumbency, party ideology, country size and economic performance.

Methods and data

The comparative method is the best choice for the study because of its role in causal inference, in ways that highlight variation and similarity to discover empirical relationships among variables (Przeworski & Tenue, 1970). The comparative analysis is specifically recommended in studies that have national political systems as cases. "Where the cases are national political systems, as they often are in the field of comparative politics, the number of cases is necessarily so restricted that the comparative method has to be used," recommends Lijphart (1971).

Another advantage of the comparative method is its relevance on developing new theory. As observed by Canel & Voltmer (2014), one of the key issues comparative political communication is concerned with is to describe and explain processes of change and transformation. Among these phenomenons are studies about "Americanization" of elections; "negativization" of campaigns; hybridization of old and new media systems; commercialization of political news coverage; professionalization of government communication; democratization processes in different world regions; globalization and

transnationalization of national public spheres.

The transnational and transcultural flows of information, in a globalized world, challenge the comparative approach of countries as clearly demarcated and independent units of analysis (Esser, 2014). But while a global communication system is a possibility, the nation-state remains the most important unity of analysis in comparative research. To overcome this dilemma, I choose to focus the analysis on national elections.

The fundamental aspect of research design on comparative studies is, while selecting the countries to be compared, either the systems should be “most similar” or “most different.” In a "most similar systems" design, common system characteristics are controlled, while intersystemic differences can be used as explanatory variables. Yet in a "most different systems" design, systemic factors are not given any special place among the possible predictors of behavior and cannot be used as explaining variation. The analysis remains at the intrasystemic level, and systemic factors are considered whenever the assumption is rejected (Przeworski and Teune, 1970).

I choose a most similar design to make it possible to study the effect of particular institutions in countries whose culture, economic and political environments are largely similar. Macridis & Cox (1953) cite Latin America as an example of an area offering the prospect of "fruitful intra-area comparison.” As the region is characterized by political and non-political uniformities, certain political processes might be compared between units within the area against a common background of similar trait configuration.

The comparative method also has risks, such as the problems of "many variables, small number of cases" (Lijphart, 1971). To minimize these problems, the research design

increases the number of cases as much as possible, gathering a total of 16 elections in a period of four years. I also increase the number of observations by analyzing not only the system, but the candidate-level (N=57). To increase the number of observations is the main strategy defended by King, Keohane & Verba (1994) for most research situations. But the specific number of cases depends on matters of variability in the dependent variable, uncertainty of the causal inference, collinearity between the causal variable and the control variables and the variance of the values of the causal explanatory variable.

The costs of collecting cross-national data are another problem that discourages comparative research on political communication. While using data from existing databases, and not new data acquired specifically for the research, scholars might have also to address the problem of measurement equivalence when comparing across contexts, cultures or over time (Schemer, Kühne & Matthes, 2014).

I avoid these problems using the same dataset for the 16 countries, acquired from observational data from Twitter. I choose Twitter data not only based on the availability of information, but also on the possibility to design models with social network analysis.

The use of social media data has another advantage. As it represents the actual behavior of users, digital media data contains a degree of validity (Mehl & Gill, 2010). Accordingly, it is possible to study human behavior without having to observe or record human subjects first. “This can allow examination of aspects of human interaction that could be distorted by more obtrusive methods or more artificial settings, due to observer effects or the subjects’ awareness of participating in a study”, compare Mahrt & Scharkow (2013).

But even using the same media platform to collect electoral data across 16 different

countries, there is still the risk of problems of measurement equivalence due to possible changes in relationships and technologies of the social media service through time. To make sure that the measurement is equivalent, I restrict the data acquisition to elections that occurred in a limited period of four years, from 2012 to 2015.

The cases were chosen based on the following criteria: (1) the country has an electoral democracy with presidential system; (2) in the year of the election the country had a score better than 4.0 in Freedom House's annual survey Freedom in the World; (3) the country held a competitive presidential election in the last four years, when Twitter had already been established as a campaign tool for candidates and voters, and in which the data is available.

Despite not being categorized as electoral democracies by Freedom House reports, Venezuela and Honduras, with a 5.0 and 4.0 scores, were also included in the sample because the act of voting is generally considered free and fair, and the opposition decided to participate in the process. It is also worth-noting that social media is heavily used by the ruling party in Venezuela and the opposition.

Chapters

The main concerns, when choosing a research method, are (1) the quality of data that accurately answer research questions; (2) the cost efficiency of the method; and (3) speed at which the data can be collected, analyzed, and disseminated. “If the combination of data quality, cost efficiency, and timeliness required by a study can best be achieved through the use of social media, then there is reason to consider these methods for research”, recommend

Murphy et al. (2014).

The simple fact that this dissertation uses a sample of 57 candidates in 16 countries, collected in a timeline of less than two years, gives support to the use of social media data. The scope and volume of data would be unthinkable if other methods were used. Also important, there were not significant costs to acquire and parse the data set, except for this PhD candidate working time.

This resolves to one question: what is the quality of the data? To verify how accurately Twitter data represents public opinion, Chapter 2 puts the data set in a trial. I test forecasting models to predict presidential election results in Latin America using Twitter Volume and Net Negative, a measure of sentiment analysis that weighs negative and positive tweets about a candidate. These models are then compared to other forecasting models using what is now the gold standard in social sciences research, polling data. The findings are satisfying: Twitter data proves that can predict election results, giving more accurate forecasting in some of the cases.

In order to draw out this comparison, Chapter 2 is also dedicated to review the literature on polls and Twitter data, investigating the complex relationships between public opinion, news media and voters. I travel through the classic problems with polling data, from sampling to effects on voting, demonstrating how conditions in Latin America are often worse for scientific polling. With electoral systems that privilege strategic voting, Latin American countries have restrictive regulations for polls during electoral time. With serious errors in design and data collection, polls in Latin American countries are often mistrusted and accused of manipulation (Seligson, 2005). Despite of this, the media has an increasing

interest in polls, following a horse-race coverage during elections. All of these facts make the region a prolific field for comparison with models based in social media.

In spite of its many advantages, Twitter data also has its own problems, which include a lack of theoretical model. This led me to propose a new concept of campaign spheres for understanding the linkage between social media messages and public opinion associated with campaigns. A campaign sphere is a degenerate model of Habermas` public sphere[2]. While the public sphere is normative, a campaign sphere is descriptive. Instead of forming public opinion through rational deliberation, a campaign sphere mostly reproduces a candidate`s political slogans and symbols to mobilize opinion leaders. While the public sphere is inclusive, a campaign sphere has clear boundaries dividing those who support the campaign and those who oppose it.

That`s why a campaign sphere has less negative interactions than the public sphere. Most of negative manifestations are directed against opponents. When individuals criticize a candidate in his own campaign sphere, they are still using this candidate`s framings, terms and symbols. Interactions with counterframings will be sparse, and not welcomed by the opinion leaders who participate in a campaign sphere.

Chapters 3 and 4 state and test the core hypotheses, demonstrating that institutions and social context do affect campaign spheres in Latin American presidential elections. Party systems are important to predict how intensely people participate, while incumbency increases the number of participants. But incumbency is only relevant to predict participation

[2] I call a campaign sphere "degenerate" in the same sense of the degenerate or perverted regimes in Plato`s Republic and Aristotle`s Politics. As Habermas holds the public sphere as a space to fulfill the ideal type promise of rational deliberation, a campaign sphere that averts deliberation should be understood, in habermasian terms, as a pathology. The association also makes sense as, chronologically, a campaign sphere represents the next step in the cycle of decline of the public sphere.

in left-wing campaign spheres, and not for right-wing networks.

President elects` campaign spheres also had more participants in the 30 days after the election – but not a higher number of participations or prestige. This means that the election result – an institutional output – has a direct effect on mobilization and demobilization of actors engaged in a campaign sphere, even in a moment when political action is not as much necessary and candidates are not strategically compelled to mobilize collective actors.

Two-round-systems had a negative impact on the participation of right-wing campaign spheres, and also demonstrated a small negative effect on the prestige of all candidates. Yet challengers had more prestige than incumbents – an effect that was stronger in plurality system countries and after the elections.

In Chapter 5, I weigh the findings and conclusions of this research in terms of the short and many times conflicted history of Latin American democracies. I also leave recommendations and topics for future research, based on the findings and methods used through this dissertation. In a broader sense, this research gives a perspective on the constrained context for communication change in Latin America, which can be extended and generalized to other new democracies.

2. Campaign spheres in Latin America: Defining a methodology to forecasting models with social media data

2.1. Introduction

The predictive power of social media data has been assessed in topics as diverse as the stock market, consumer behavior, box office, epidemics, natural hazards, conflicts (Bollen et al., 2011; Chen et al., 2016; Culotta, 2013; Goel et al., 2010; St. Louis & Zorlu, 2012; Schmmidt, 2012; Zeitzoff, 2011). It is not a surprise that the scholarship would also use big data to grapple with elections, one of the main fields for forecasters.

Trying new methodologies for election forecasting is compelling in a moment when polls are demanding more time and money, while the standard method in representative polling has suffered increasingly high nonresponse rates (Holbrook et al., 2007; Keeter et al.,2006; Kohut et al., 2012; Steeh et al., 2001; Tourangeau & Plewes, 2013). Nevertheless, can social media data be used as an alternative to polling data? So far, the literature has given

different answers to this question, which can be explained by the fact that the scholarship has only worked with single-case studies and hasn`t tried a comparative analysis of polling and social media models in different countries.

Meanwhile, political campaigns are increasingly using big data to create accurate predictions about the preferences of voters, their expected behaviors and their responses to campaign outreach (Bimber, 2014; Hersh, 2015; Nickerson & Rogers, 2014). Voter databases that contain detailed information on individual citizens are developed to plot electoral strategies, shaping decisions about who the campaign should target, and how such contact will affect voter preferences, fundraising or turnout. This new campaign model challenges the "numbers-driven campaign", in which candidates and their advisors mainly paid close attention to poll numbers and adjusted policies and agenda in response to surveys (Nickerson & Rogers, 2014).

Drawing up Habermas' concept of public sphere, I address the problems of measuring and analyzing public opinion during electoral campaigns with social media data. Due to the impossibility of capturing and modeling a public sphere that has become larger, more complex and fragmented, I propose to narrow down the concept into campaign spheres, which can be used to design descriptive and forecasting models with more precision and accuracy. After defining the concept and proposing a methodology to measure campaign spheres, I test the theory comparing models using Twitter data and poll data to forecast presidential elections on 16 Latin American countries, between 2012 and 2015.

The region offers proper conditions to compare models based in polling data and in social media. As I review in the literature, the classic problems with scientific polling, from

sampling to effects on voting, are often worse in Latin America. With electoral systems that privilege strategic voting, Latin American countries have restrictive regulations for polls during electoral time. Surveys are often mistrusted and accused of manipulation due to serious errors in design and data collection (Seligson, 2005). Despite of this, the news media has an increasing interest in polls, following a horse-race coverage during elections.

Social media data also has its own limitations. Created to assess the impact of new "emerging technologies" on the broader discipline and industry of opinion research, the AAPOR Emerging Technologies Task Force notices that, to date, few studies have been published that directly compare survey responses with online behaviors. "But this is an appealing option, both because it may allow areas of survey coverage error to be explored in greater detail than with traditional survey research, and because it may allow social media coverage to be explored in unprecedented ways through links to survey and administrative records", argue Murphy et al. (2014).

Answering this call, my findings show that polls still have an overall advantage over social media data, but in some cases the latter can give more accurate predictions. Another aspect is that Twitter data models provide information about more candidates than the polls, which can omit estimates about minoritarian candidates. Before this analysis, I review in the next section the literature about polling data and social media data, with particular attention to the complex and difficult relationships between public opinion, news media and voters.

2.2. Literature Review

2.2.1. Classic Problems with Polling data

Berinsky (2017) notices that, even given the long history of polling, there is no agreement among political scientists on how to best measure public opinion through polls. Problems on preelection polls are recurrently discussed in the literature since the emergence of scientific polling in the 1930s. The first edition of *The Public Opinion Quarterly*, in 1937, would bring a section devoted to sampling methods, explaining why the Literary Digest poll failed to predict Roosevelt`s election in 1936 (Gosnell, 1937). One of the most emblematic cases about survey failure, the Digest sent its ballots by mail to names taken from telephone books and automobile registration lists. As a result, the poll was biased both in the sample and response, over-representing men, urban and wealthy areas (Bryson, 1976; Katz & Cantril, 1937; Lusinchi, 2012; Squire, 1988).

Other than sampling error, polls can have problems on question wording and question order; change on the voters` attention, with more publicity about the presidential race and less attention to other offices like congressional seats; time of the interview, with less bias on the day of the election and increasing bias with a higher number of days from the interview to the election; misreporting vote choice, with studies demonstrating that more people say they vote than actually vote and also problems with the honesty of people's responses to the questions (Anderson & Silver, 1986; Burden, 2000; Weisberg, 2008; Wright, 1993).

The latter is a particular concern of the spiral of silence theory. Noelle-Neumann (1974, 1977, 1979, 1991) observes that individuals experience ongoing conflict between their private convictions and the social demands to conform. Individuals fear social isolation in

reaction of opinions perceived as forbidden or minoritarian in the social environment. Finding his ideas are losing ground, one can silence his support for one candidate, resulting that the numbers in the polls will appear weaker than they actually are. On the other hand, a perceived positive climate of opinion will cause individuals holding the socially accepted point of view to be more likely to express their views publicly. In this situation, a candidate`s predicted forecast will appear stronger than it actually is.

Despite the best efforts of researchers, advances on methodology and technology, and even the use of monetary incentive, participation in surveys has been declining over time (De Leeuw & De Heer, 2002; Singer, 2006; Brick & Williams, 2013). Scholarship finds that countries differ in response rate, but there are no differences between countries in the rate which noncontacts and refusals are increasing (De Leeuw & De Heer, 2002).

Nonresponse rates do not always result in bias, but can be harmful depending on survey design, sample and estimation (Groves, 2006; Groves & Peytcheva, 2008). Due to decline of response rates, researchers are even considering alternatives to use non-representative polls, collected through the internet or other ways, and adjusting the response (Wang et al., 2014; Zhang et al., 2017). These trials are promising and could eventually draw a consensual theoretic basis, but some authors still doubt that survey results using samples from nonprobability online panels are projectable to the general population (Baker et al., 2010). The AAPOR Task Force on Non-Probability Sampling found difficult to ascribe properties that apply to the wide range of non-probability sampling methodologies, with different expectations of accurate estimates, sometimes low transparency on sampling methods and not always clear modeling assumptions (Baker et al., 2013).

These problems are no better and often worse in developing countries. Recounting personal experiences with survey data in Latin America, Seligson (2005) observes that even "well established" or "leading" survey firms, with an "excellent reputation", have deficiencies in the quality of data and a wide range of serious errors occur in design and data collection.

In many polling companies accounted by Seligson (2005), respondents are not probabilistically selected, or even selected by some sort of quota system, with surveys systematically unrepresented of the population of the country. “I was told that a 'good' sample of the country would not need to include significant numbers of respondents from the highlands because those people, many of them indigenous, did not really count”, remembers Seligson (2005). The surveys commonly underrepresent the rural population, as firms find out that these have larger nonresponse rates. There are countries where companies don't update census data that are used to draw samples and can be many years out of date.

Training and supervising interviewers are other recurrent problems. "It is almost the rule for firms in Latin America to train their interviewers to take the questionnaire as a loose guide and to give the interviewer a great deal of flexibility to change the questions", observes Seligson (2005). He also detected errors caused by coders and data entry personnel.

The history of political polarization or violence in some Latin American countries can also result in polling failure, as reported since the democratization or re-democratization period in the 1980s and 1990s. Analyzing the disparity among the polls and flawed predictions in Nicaragua, in 1990, Miller (1991) explained bias as a result of polling methods that were systematically flawed, though some argued that the error was more a result of a highly volatile electorate than of ill-conceived or botched polling procedures. Miller (1991)

points out flaws on voter screens, the form of the vote intention question, and its placement in the questionnaires used in different polls. In a very polarized and politicized environment, he argues, respondents used partisan lens to interpret the polls and often refused to answer or didn`t take vote intention questions seriously.

The history of conflict and intimidation in the country may reflect on how citizens respond to polls, putting the idea of neutral measurement into question. During the 1990 election in Nicaragua, UN monitors observed that some "polls" were carried out by partisan activists on both sides. Miller (1991) also notices the refusal of polling firms and sponsors to share methodological information or to allow observation during the preelection period.

The "pen experiment" (Bischoping & Schuman, 1992) demonstrated that respondents would report vote different intentions depending on their perception of interviewers' political affiliations. In the experiment, during the 1990 Nicaraguan election, interviewers were directed to do interviews using a Sandinista logo pen, a UNO logo pen, and a "neutral" pen.

Respondents, randomly assigned to the conditions, reported large vote intention majorities for the FSLN in the Sandinista and "neutral" condition, but chose the UNO in the UNO pen condition. The findings suggest that, if respondents were given clues about the political leaning of the polling firm, they would tend to report voting intentions in line with their perception. If clues were absent, respondents assumed that the interviewer represented the government and gave responses supporting the FSLN.

This environment of fear and suspicion about interviewers is not without basis. As Seligson (2005) notes, firms don`t usually follow regulations on how to protect human subjects, and researchers don`t have standards on how to ask questions that are considered

sensitive or even threatening in nations that experienced armed conflicts or were recently ruled by authoritarian or semi-authoritarian regimes. Survey data sets are rarely made available to the general public, avoiding transparency about the methodology and a secondary analysis by scholars.

2.2.2. Poll effects and strategic vote

Another class of problems has to do with poll effects, since the publication of survey results can have an effect on voters` behavior, which would ultimately have an impact on the predictions. In "The Pulse of Democracy", Gallup and Rae (1940) sustain that public opinion results do not influence citizens' attitudes. This claim is compatible with researchers that question the credibility of polls among the public, finding a "healthy skepticism" (Roper, 1986). Political elites have low trust in election poll results, but nevertheless believe that polls affect voter behavior (Brudney, 1982). There is also evidence that credibility of public opinion polls is affected by motivated reasoning, while people discredit information that differs from preexisting attitudes. Citizens who hold issue positions that contradict poll results find those polls less credible, particularly if the voter has high levels of political knowledge (Kuru et al., 2016).

However, the literature has disputed those claims with studies on strategic vote, the bandwagon and underdog effects. As first discussed by Simon (1954), published poll data are assumed to influence voters` expectations of the election outcome, hence to affect voting behavior. If persons are more likely to vote for a candidate when they expect him to win than

when they expect him to lose, they tend not to waste his ballot by voting for a minority candidate or loser, but to go with the winner in a "bandwagon" fashion. There is also the possibility of polling results producing support not for the winner, but for the “underdog”, especially in an environment of mistrust against political elites.

Therefore, polling results can lead to self-confirming predictions (Baumol, 1957). Predictions of a succession of polls will increase in accuracy simply because the movements in poll results and the induced movements in voter intentions will converge. Thus the outcome of an election can hinge not only on the results of the polls but also on the number of polls taken (Baumol, 1957).

Although hard to prove, the bandwagon and underdog effects have found evidence on empirical research, mainly with experiments and data on surveys and exit polls, in different countries and situations, including primaries and events outside the electoral context (Callander, 2007; Ceci & Kain, 1982; Delli Carpini, 1984; Gimpel & Harvey, 1997; Goidel & Shields, 1994; Marsh, 1985; McAllister & Donley, 1991; Nadeau et al., 1993; Navazio, 1987; Skalaban, 1988; West, 1991).

In bandwagon studies, shifts in the direction of majority opinion are most likely among citizens with low levels of information or little interest or motivation to think about an issue or candidate (Mutz, 1992). Polling effects are also enhanced in minimal-information elections, defined by a general absence of awareness of the issues on the part of the voters, lack of partisan identification on the part of the candidates, and by a relative or total lack of relevant information with which the voters can evaluate the candidates. Under those circumstances, almost any information, including poll results, might have an exaggerated and

decisive impact in such campaign (Fleitas, 1971).

Again the situation is no better and often worse in Latin American countries. Many elections in Latin American countries operate on low-information. Following a delegative democracy model (O`Donnell, 1994), Latin American countries have developed a strongly individualistic relationship between voter and political elites, generally not based on specific issues or programs. Voters are supposed to choose, irrespective of their identities and affiliations, the individual who is fitter for taking care of the destinies of the country (O'Donnell, 1994).

Analyzing the 2006 presidential elections in Mexico, Greene (2011) observes that voters agreed that economic problems such as poverty and unemployment were the most pressing national issues, but they disagreed about which candidate was most capable of addressing these problems. Thus, the voting decision was based on the candidates' perceived images, and not on public policy differences. While the public can be more easily persuaded, the candidates target the switch voters, and strategically decide not to build strong party identities during the campaign (Greene, 2011).

Comparing strategies and techniques of electioneering in Latin American countries, Boas (2010) observes that Chilean candidates have adopted a personalistic approach, which privileges direct linkages to voters, avoids priming societal cleavages and does not focus heavily on policy, while in Brazil candidates employ technocratic strategies with high policy focus. The explanation for these differences is in the distinct origins of national models of electioneering: the first successful candidates in Chile were center-left, while in Brazil they were center-right (Boas, 2010).

Using data from Argentina, Brazil, and Venezuela, Gélineau (2007) agrees that electoral accountability revolves around the centralized nature of presidential regimes in Latin America. Due to the relatively low level of institutionalization of party systems, under certain circumstances, voters have limited ability to hold the incumbent party responsible for past economic performance, and do not use their economic assessments when deciding whether to vote for the incumbent party.

Other than the bandwagon or the underdog effect, preelectoral polls have a crucial role for strategic voting, while setting up the expectations of voters (Cox, 1997). Supporters of one party are likely to desert to another candidate that shares similar ideology, if poll results reveal that the candidate is ahead. That`s because vote choice depends not just on the voter's preferences over candidates but also on the expectations about how well each candidate will do. Strategic voters avoid "waisting a vote" on a candidate with little chance to win, even if he is otherwise attractive. As a result, clearly known common expectations about who is and is not viable work as self-fulfilling prophecies. "Contributors do not contribute to, activists do not volunteer for, and citizens do not vote for hopeless candidates, ensuring that those expected to do poorly, do poorly in fact", observes Cox (1997).

Strategic vote is particularly used in second-ballot or two-round majority runoff systems, as it is the design of most presidential elections in Latin America and most direct elections of presidents worldwide (Shugart & Taagepera, 1994; Reynolds et al., 2008). The exceptions in Latin America are Honduras, Mexico, Panama, Paraguay and Venezuela, who adopt first-past-the-post systems, otherwise known as plurality systems, in which the office is awarded to the candidate who wins a plurality or "simple majority" of the votes, even if this

is less than the “absolute majority”.

In the two-round system, only candidates who obtain an absolute majority of votes in the first round are declared elected. This absolute majority is commonly defined as 50% or more of the valid votes, leaving out the count blank or spoiled votes, as it is in Bolivia, Brazil, Chile, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala and Uruguay. In Argentina, a candidate wins in the first round if she receives 45% of the valid votes, and in Costa Rica, 40%. There is also a lower threshold of 40%, in Argentina and Bolivia, if the candidate is more than 10% ahead of the next most voted candidate.

If no one reaches absolute majority, a second round is held between the two candidates who got the highest number of votes. The runoff election is organized shortly after the first round, varying from two weeks later (Argentina); three to four weeks later (Brazil, Chile and Colombia); five to six weeks later (Dominican Republic); one month later (Uruguay); 30 days later (El Salvador); 45 to 60 days later (Bolivia, Ecuador and Guatemala); or two months later (Costa Rica).

Majority runoff rules tend to be associated with an effective number of presidential candidates greater than three. The effective number for plurality is, on average, less; however, a nontrivial share of such elections has resulted in close multicandidate races (Shugart & Taagepera, 1994). Of the 16 Latin American countries that held elections between 2012 and 2015, five have plurality systems. Of the 11 countries with the two-round system, only Dominican Republic, Ecuador and Bolivia didn`t have a runoff election, as the incumbent candidates were elected or re-elected with more than 50% of the votes in the first round (*see on table 2.1)*.

Table 2.1. Effective number of candidates and electoral systems in Latin American presidential campaigns, 2012-2015			
Country	**Electoral System**	**Effective number of candidates**	**Second Round**
Argentina	Two-round	3,31	Yes
Bolivia	Two-round	2,26	No
Brasil	Two-round	3,02	Yes
Chile	Two-round	3,29	Yes
Colombia	Two-round	4,3	Yes
Costa Rica	Two-round	4,45	Yes
Dominican Republic	Two-round	2,07	No
Ecuador	Two-round	2,58	No
El Salvador	Two-round	2,48	Yes
Guatemala	Two-round	6,62	Yes
Uruguay	Two-round	2,74	Yes
Honduras	Plurality	3,59	--
Mexico	Plurality	3,06	--
Panama	Plurality	3,03	--
Paraguay	Plurality	2,54	--
Venezuela	Plurality	2,01	--

In a top-two majority runoff election, instrumental voters do not worry about their vote putting a favored candidate over the top in the first round; they only worry about their vote deciding who will be in the runoff. The second round produces a result that is truly

majoritarian, in that one of the two participants will achieve an absolute majority of votes and be declared the winner.

Not only the availability of information but also the perceived trustworthiness of that information shapes voters' ability to act strategically. If polls are absent, noncredible, or ambiguous, then "the informational prerequisites of strategic voting may not be satisfied, in which case one again expects a failure of coordination" (Cox, 1997). If who is ahead and who is behind does not come clear, it is more difficult to vote strategically. In this sense, candidates trailing in multiparty races tend to dispute the accuracy of the polls that show them trailing; claim to have different results in proprietary polling, and urge voters to ignore the polls.

This doesn`t necessarily happen only with candidates who are behind in the polls. During a rally in the 2014 race in Uruguay, incumbent candidate Tabare Vasquez, from leftist coalition Broad Front (Frente Amplio), challenged his supporters to tell who had ever been interviewed by polling firms, and mocked them when nobody raised their hands (Charquero, 2014). At the time, two months before the first round, the polling firms would estimate Vasquez in first place, with 39% to 41% of the votes, but wouldn`t predict a Congress with a Wide Front majority. After the election, in which the leftist coalition obtained the legislative majority, the Broad Front started to discuss a project to regulate preelectoral polls and give more transparency to their methodology.

2.2.3. Poll regulation in Latin America

Due to the perception that polls not only reflect, but also shape public opinion, an increasing number of democratic countries have institutions that regulate polling firms and activity, from guidelines to what kind of information the media should use while covering polls or even restrictions to the publication of poll results. Trying to limit the influence of polls on election outputs, many countries, not only in Latin America, outlaw the publication of polling results during some portion of the campaign. In a comparative perspective, the number of countries that ban the publication of preelectoral polls is rising (Petersen, 2012).

From the 16 Latin-American countries that held elections between 2012 and 2015, only Brazil and Dominican Republic don`t have restrictions. Diffusion of preelectoral polls was forbidden in Brazil 15 days before the elections (Código Eleitoral – Lei 4737/1965), but that changed after the Constitution of 1988.

Now polls can be published at any time in Brazil, but polling companies are regulated by Electoral Law. All polls must be registered at the Electoral Justice, specifying who paid for the survey and informing the methodology, with detailed sample size, stratification and error; complete questionnaire; and when the interviews were made. Publishing fraudulent polls can be punished with up to one year of prison.

Dominican Republic doesn`t have institutions to regulate polls, but the Electoral Justice (Junta Central Electoral) presented in 2016 a reform proposal to limit poll publication five days before the election and also rules to register and oversee polling companies. The proposal was presented after the disparity of polling predictions, which made the population question their methodology and credibility (Cabreja, 2016).

Following are the restrictions on the publication of polls in other Latin American

countries:

Argentina - Forbids publication or diffusion of preelection polls in any media outlet eight days before the elections up to its closing. Polling companies must be registered, and inform who hired their services, amount paid, scientific methodology, sample size and characteristics, selection of subjects, error e period of interviews. While publishing information about polls, media outlets must cite the name of the polling company and the technical specifications. (Ley de Democratización de la Representación Politica, la Transparencia y la Equidad Electoral - Ley 26571/2009)

Bolívia - Preelectoral polls are allowed only after the final day of the period of candidate registration, and can only be published up to the Sunday before Election Day. Polls published in any media outlet should explain their methodology: sample size and methods, error, questions and interviews period. Candidates cannot use numbers from preelectoral polls on their campaign advertisement. Illegal diffusion of polls can be punished with up to three years of prison. (Ley del Régimen Electoral - Ley 26/2010).

Chile – Polls cannot be publicized during the 14 days before the election. (Ley Orgánica Constitucional sobre Votaciones Populares y Escrutinios - Ley 18700/1988).

Colombia – Polls or projections based on previous data cannot be done or publicized on media outlets during the week before the elections. Only polls with representative statistical samples can be publicized. In the publication or diffusion of polls, sample size and methods, financing, actual questions, margin of error and interview dates must be informed. (Código Electoral – Decreto 2241/1986; Ley 130/1994; Ley 996/2005).

Costa Rica - It is forbidden to publicize, in any media, polls on three days before the

elections. Only registered companies can conduct polls during the electoral campaign period. (Código Electoral - Ley n.o 8765 de 2009)

Ecuador – Polls cannot be publicized during the ten days before the elections. News outlets can be punished with a fine between US$ 5,000 and US$ 20,000, and can have their activities suspended for six months. (Ley Orgánica Electoral, Código de la Democracia - Ley s/n/2009)

El Salvador – Polls or electoral projections cannot be publicized in any media outlet 15 days before the elections (Codigo Electoral - Decreto Legislativo, 14/12/1992)

Guatemala – Not only publication, but conducting interviews for polls is forbidden 36 hours before the elections and during Election Day. (Ley Electoral y de Partidos Políticos (Decreto 1/85 de la Asamblea Nacional Constituyente)

Honduras – In the most restrictive regulation among Latin American countries, polls cannot be publicized or diffused 30 days before primary or general elections and during election day. Media outlets, polling companies and others can be punished with a fine. Polling companies must be registered by the Electoral Justice and must publicize methods and proceedings used in polls to be authorized. (Ley Electoral y de las Organizaciones Políticas y sus Reformas – Decreto 44/2004)

Mexico – Publicizing pools in any media outlet is forbidden three days before the elections. Scientific methods should be adopted, under the supervision of the Electoral Authorities. Methodology, costs and results are publicized by public authorities. (Ley General de Instituciones y Procedimientos Electorales/2014)

Panamá – Forbids publication of polls during the ten days before the election. Polling companies and professionals must be registered at the Electoral Justice. Publication of polls

must have the name of polling company and financing; sampling methods, including size and geography; questionary; data collection; interview periods; and margin of error. (Código Electoral de Panamá - Ley 11/1983)

Paraguay – Publication of polls is forbidden 15 days before the elections and can be punished with up to six months of prison, plus fine. (Código Electoral Paraguayo - Ley 834/96).

Uruguay – Polls cannot be done or publicized in the two days before the elections. Exit polls can only be publicized after the election time. (Ley 16019/1989)**.**

Venezuela – It is forbidden to publicize polls, in any media outlet, seven days before the election Media outlets must inform technical information of polls while reporting their predictions. Punished with a fine. (Ley Orgánica de Procesos Electorales/2009).

2.2.4. Horseracing, polls and the media

If polls do affect voting behavior and attitudes, as it is the expressed concern of the literature and electoral regulation, those effects are nothing less than magnified by the relationship between polls and the media. As observed by Strömbäck & Kaid (2008), most countries have developed media coverage systems where "horserace" coverage is prominent or even dominant. In this concept, news media have adopted coverage habits that favor reports of campaign strategy, polling and game frames over analysis of substantive policy issues. Even media elites have significant concerns about the intrusiveness of polls in election campaigns and the way they might influence citizens` attitudes (Kohut, 1986).

This feature had already been identified by McCombs & Shaw (1972) as a particular characteristic of the American media system. While introducing agenda-setting theory and testing it over the United States presidential election in 1968, McCombs & Shaw noticed that major emphasis of mass media was not devoted to discussion of political issues but rather to "analysis of the campaign itself" and of the chances of a candidate winning or not.

Since then, horserace coverage has intensified, not only in the United States but also in most Western democracies (Brettschneider, 1997, 2008; Ferguson & de Clercy, 2005; Gidengil, 2008; Gouws & de Beer, 2008; Ladd & Benson, 1992; Roncarolo, 2008; Strömbäck, 2009; Tiffen, 2008; Traugott 2005; Weimann 1990).

The scholarship has also detected bias between the distribution of poll coverage on television and actual poll results, a distortion caused by gatekeepers and reporters (Searles et al., 2016). Other problems of reporting the polls are selecting segments of the sample, selectively comparing results, emphasizing spectacles, questioning the validity of polling, making mistakes, ignoring certain data (Broh, 1980).

Journalists very often fail to take statistical uncertainties into account or to provide explanations for changes that are within the margin of error (Tryggvason & Strömbäck, 2017). The American Association for Public Opinion Research (AAPOR), as many other polling associations, adopted a code of standards that guides how media outlets should report survey results, including sample size, sponsor, wording, sampling error, definition of population sampled, interview method, timing and the basis for results that use less than the total sample. Unfortunately, these reporting standards are not always followed by newspapers when publishing poll results (Miller & Hurd, 1982).

In Latin America, preelection surveys have become a high-profit business, in which many newspapers and TV stations have formed alliances with firms to commission regular surveys (Seligson, 2005). Despite the trend of professionalization and commercialization of media outlets, there is still strong political parallelism and low pluralism.

The Latin American media system is categorized by low levels of newspaper circulation; a tradition of advocacy reporting that favors commentary from a distinct political perspective, instead of the Anglo-American model of professional neutrality; and instrumentalization of privately-owned media, with political alliances and ambitions seeking to use media properties for political ends (Hallin and Papathanassopoulos, 2002). There is also a pattern of politicization of public broadcasting and broadcast regulation. As stated by Hallin and Papathanassopoulos (2002), the historical ties between the media and political elites in the region are defined by clientelism.

As the result of this Captured Liberal Model of media, many Latin Americans think that poll results have been “cooked” to favor one party or the other (Seligson, 2005). “Sadly, this is precisely what many Latin Americans think when they read poll results in their newspapers, and even more sadly, many times they are right”, observes Seligson (2005). “Political parties carry out surveys and release data to the media, or to 'their media', that show their candidate far ahead in the race in the hope of generating a poll-based 'coat tail effect'. When the returns ultimately reveal radical differences between the poll results and the actual vote, readers lose faith in survey results, sparking a credibility problem that is difficult to overcome.”

Horserace coverage not only affects voter behavior, but also political elites, with

impact on contributors` expectations and behavior. Contributors are motivated to donate by coverage suggesting that their strongly favored candidate is losing ground or by coverage suggesting increased viability (Mutz, 1995).

2.2.5. Twitter data

With the explosion of popularity in social media over the past several years, researchers now have a whole new field for social inquiry, which offers many advantages but also many challenges. Data collection is certainly one of the main benefits. Big data increased automation of data mining and analysis, with algorithms that can extract and illustrate large-scale patterns in human behavior (Boyd & Crawford, 2012). It is possible to easily access huge flows of new data every day, any time, with no considerable cost as compared to polls. As one can have all the data available in a platform about a candidate, a party or any other topic, there are no problems of sampling error within the population of social media users.

The nature of the data is also very different from surveys, as posts correspond to actual social behavior, and not interviews in which people are asked to recall or describe themselves or their past behaviors. “Survey data are typically captured from individuals once in cross-sectional studies, and a limited number of times within particular time frames with longitudinal studies. Social media, on the other hand, allows for a more continuous look at opinion, attitudes, and behaviors, when shared and when reflecting the truth”, observe Murphy et al. (2014).

Social media is not defined by a single source of data, but a long and ever-changing list of platforms. In the literature, most forecasting models based on big data are built with Twitter posts, mainly because of the availability of the data and its reach, as compared to other social networking services. In comparative studies, Twitter has the advantage of being present in a great number of countries. According to the platform`s 2016 statistics, there are more than 500 million tweets per day, from 40 languages and 328 million active users per month worldwide, with 79% of accounts outside the United States (Twitter, 2016).

Like survey data, social media data has limitations and drawbacks that have become increasingly clear as social media platforms have proliferated in recent years, with a rapid increase in adoption and use by both members of the general public and specific subpopulations (Murphy et al., 2014). A behavioral network like Twitter, derived from communication patterns and social media interactions, is not equivalent to personal networks (Boyd & Crawford, 2012). Not every connection is the same, and neither does frequency of contact indicate strength of relationship. It is also an error to assume that every Twitter handle corresponds to a person, or that the population using Twitter is representative of the general population (Mislove et al., 2011). Consequently, any interpretation of the data will be highly dependent on its context (Boyd & Crawford, 2012).

Another concern is the use of automated programs, also known as "bots", whose activity on Twitter accounts might give bias to social media metrics (Haustein et al., 2016). Capable of realistically mimicking human behavior, they can "infiltrate online communities, build up trust over time and then send personalized messages to elicit information, sway opinions and call to action" (Boshmaf, 2012). Different methodologies were proposed and

even a competition was organized to detect automation of Twitter accounts (Abokhodair & McDonald, 2015; Bessi & Ferrara, 2016; Chu et al., 2012; Dickerson et al., 2014; Ferrara et al., 2016; Zhang & Paxson, 2011; Subrahmanian et al., 2016). The systems for social bot detection employ analysis of networks, user features, friends, temporal patterns of tweets, content and sentiment of posts.

The Twitter corporation contests studies of the impact of bots and automation, claiming that these "necessarily and systematically under-represent" enforcement actions which are not visible via Twitter API, and because they take place shortly after content is created and delivered via streaming API (Twitter, 2017). "Researchers using an API often overlook the substantial in-product features that prioritize the most relevant content. Based on user interests and choices, we limit the visibility of low-quality content using tools such as Quality Filter and Safe Search – both of which are on by default for all of Twitter's users and active for more than 97% of users", informs the company. Twitter estimates that false or spam accounts represent less than 5% of active users (Twitter, 2017). To be fair, spam, "fake news", false accounts, astroturfing[3] groups and malicious activity during electoral campaigns are also detected in many other platforms, like Facebook (Weedon et al., 2017)

However, Twitter has been mostly permissive on the use of bots, remembering that automated accounts are also responsible for customer support and public safety services. Crowell (2017) defends that Twitter`s open and real-time nature is an antidote to the spreading of false information. "Journalists, experts and engaged citizens tweet side-by-side correcting and challenging public discourse in seconds", argues.

[3]Organized activity that purports to reflect authentic individuals but is actually manufactured, as in "fake grass-roots".

After the 2016 United States elections, the threat of social media manipulation in democratic elections has become a concern not only of political communication researchers, but also of legislators and the inteligence community (Inteligence Community Assessment, 2017; Norden & Vandewalker, 2017; Stevenson, 2017). But this issue is not on the scope of this chapter. The much more mild anxiety, for election forecasters, is either automated or suspicious activity in social media should be considered in their models.

My stand is to follow two steps: first, restrict data collection to posts that are geolocated in the country holding the elections; second, account all the data, including bots activity. Even if automated posts add more noise to the data, they can also have effects on attittudes and behaviors of real internet users. For that, we need to assume that these automated accounts are located in the country and therefore have ties to real actors. In this sense, social media manipulation can result in more accurate predictions for forecasting models based in social media – no matter how bad this can be for democracy.

There are also concerns to assure and protect the privacy of the subjects, and the scholarship has been discussing guidelines to mine, store and manipulate online datasets (Ess, 2002). Rules regarding obtaining subject consent are typically obviated when the data have been collected by a third party and have been anonymized (Lazer & Radford, 2017). But regulating informed consent, one of the most important grounds for human subjects research, is among the central issues that have yet to be settled by big data researchers. “It is incumbent upon the field to explore this new world in a way that holds true to our values of ethical research, impartiality, transparency, and maximizing accuracy and quality in our measurements”, suggest Murphy et al.. 2014.

One of the main challenges on Twitter studies is to use search terms and/or hashtags to identify relevant data. As some terms may generate a high number of false positives, investigators should give careful thought to their keywords to avoid under or overestimating the volume of discussion or obscuring patterns of interest (Kim et al, 2013). Qualitative review of tweet content is helpful in determining whether search terms are identifying relevant content.

2.2.6. Twitter Volume Share and Sentiment Analysis

Despite these concerns, to which researchers should be attentive, there are good reasons to think that valuable information can be extracted from social media. The two parameters most commonly used in forecasting models are *share of volume on Twitter* and *sentiment analysis* (Go et al., 2009; Kouloumpis et al., 2011; Lin & He, 2009; Mei et al., 2007; Pak & Paroubek, 2010; Taboada, 2016) . Other researchers have found both of these to be correlated with surveys.

Using data from the Irish general election in 2011, Bermingham & Smeaton (2011) find support to predictions with Twitter volume data, with marginal increment by the inclusion of sentiment analysis. Volume would be the single biggest predictive variable, followed by inter-party sentiment. Bermingham & Smeaton (2011) speculate that volume may be a reasonable indicator of public opinion and vote intention, while sentiment is reactive and therefore more difficult to discriminate.

Analyzing the German federal election in 2009, Tumasjan et al. (2010) found that the

distribution of votes among the six main parties accurately reflected the share of volume on Twitter, with its predictive power close to traditional election polls. “Even if the Twitter sphere is no representative sample of the German electorate, the activity prior to the election seems to validly reflect the election outcome”, claim the authors (Tumasjan et al., 2010).

Burnap et al. (2016) were able to forecast accurately the top three parties in terms of vote share during the United Kingdom 2015 general election. Geocoding of tweets also allowed the authors to forecast outcomes for regional parties. Working with tweets related to the European Union referendum in the United Kingdom, Diaz Lopez et al. (2017) conclude that Twitter data may be used as substitute for Internet polls, and also as a complement for telephone polls.

Other methods using Twitter data also proved to be effective on forecasting models. In a time series analysis with text sentiment from 2008 to 2009, O`Connor et al. (2010) find that sentiment detector based on Twitter data replicates consumer confidence and presidential job approval polls. Models incorporating socio-demographics and census information to sentiment analysis demonstrated success to forecast presidential elections in Singapore 2011 and the United States 2012 (Choy et al., 2011, 2012).

Some reviews of social media studies forecasting election outcomes point out research problems and question their validity, suggesting that the predictive power of Twitter regarding elections has been exaggerated (Chung & Mustafaraj, 2011; Gayo-Avello, 2012; Jungherr et al., 2012; Metaxas et al., 2011). According to Huberty (2015), forecasting methods fail when subjected to the demands of true forward-looking electoral forecasting, because “social media do not offer a stable, unbiased, representative picture of the electorate,

and convenience samples of social media lack sufficient data to fix these problems post hoc".

Other criticisms are the lack of theoretical models to explain relationships between Twitter data and election results; not accounting or controlling astroturfing behavior captured in the data; not having a common basis for comparison; not measuring the effect of incumbency. Some of these aspects and other problems on measuring social media data are discussed in the next section.

2.3. The Public Sphere and Campaign Spheres

In this section I propose a new concept for understanding the linkage between social media messages and public opinion associated with campaigns. My starting point is Habermas` model of deliberative democracy. According to Habermas (1991), the public sphere is defined as an intermediary system of information, between the state and society, in which citizens can discuss public issues with the use of reason, expressing and forming public opinions. Rooted in networks, the public sphere encompass both formally organized and informal deliberations.

However, since the last decades of the 19th Century, the public sphere underwent social-structural transformations: 1) tendency toward a mutual infiltration of public and private spheres; 2) polarization in the social sphere and the intimate sphere; 3) collapse of the literary public sphere, a ground for culture-debate, which was replaced by the "pseudo-public" or "sham-private" culture-consumption.

These transformations have brought consequences to the public sphere`s political

function. Quoting Katz & Lazarsfeld (1955), Habermas (1991) observes that the stream of political opinion, instead of the liberal ideal of horizontal exchange relationships among individuals, now flows in a vertical direction, starting from the “opinion leaders” of public affairs – usually wealthier, better educated, in a better social position than the groups influenced by them.

Habermas notes that political discussions are for the most part confined to homogenous in-groups, to family, friends and neighbors. These politically interested, informed and active core strata of the public are least inclined to submit their views to discussion. Frequently engaged, they tend to do no more than mutually confirm their ideas. On the other hand, those who are predisposed to avoid public opinion formed by discussion are most likely to be influenced in their views – "but this time by the staged or manipulatively manufactured public sphere of the election campaign" (Habermas, 1991).

The immobilization of the larger part of the citizens undermines the voters` coherence. The core constituency of one party is divided in two groups: 1) minority of "active" citizens, either member of parties or social organizations, or organized but well informed and strongly involved voters who are usually also influential as opinion leaders; 2) majority of citizens indifferent to political controversies.

Political Twitter data is produced mainly by those politically active opinion leaders. Users participating in the political discussion are mostly strong partisans, men, living in urban areas, and with strong ideological preferences (Barberá & Rivero, 2015).

This political public sphere during elections is categorized by Habermas as a “decayed form of the bourgeois public sphere”. “Originally publicity guaranteed the

connection between rational-critical public debate and the legislative foundation of domination, including the critical supervision of its exercise. Now it makes possible the peculiar ambivalence of a domination exercised through the domination of nonpublic opinion: it serves the manipulation of the public as much as legitimation before it. Critical publicity is supplanted by manipulative publicity." (Habermas, 1991)

On these "campaign spheres", mass media is useful only as vehicles of advertising. "Instead of deliberation there is acclamation and handing out slogans to the small troop of persons who are hard core loyalists." With new media, the public sphere not only has become more submissive to private spheres but also has diluted into an apolitical sphere of culture-consumption, more and more fragmented into echo chambers. In this sense, digital age has brought challenges for mapping the public sphere, even in very well defined and predictable political events as national elections.

Drawing up Habermas` concerns about the structural transformations of the public sphere, I define campaign spheres as sections of the public sphere. They connect candidates to potential voters and supporters, exchanging deliberation for mobilization. Campaign spheres are information systems identified by specific issues, frames, symbols, topics, hashtags and social network handles, recognized and used by a candidate during a campaign. The main actors in a campaign sphere are the candidate; other politicians and political groups that belong to the candidate`s coalition; journalists or news media outlets aligned with the candidate; and strong political partisans or issue activists who support a cause that is benefited by the candidate`s program or past policies. They are organized in networks in which the candidate occupies a central position.

Campaign spheres have mainly positive attitudes to the candidate, higher homogeneity and less conflict as compared to other sections of the public sphere. Most of negative manifestations are directed against opponents. When individuals criticize a candidate in his own campaign sphere, they are still using this candidate`s framings, terms and symbols, and perhaps wishing for his best. Interactions with counterframings will be sparse, and not welcomed by the opinion leaders who participate in a campaign sphere.

While affiliated to a campaign sphere, individuals can still participate in other instances of the larger and inclusive public sphere. They will still be carrying out other interests, either public or private. But participation in a campaign is bounded by a single goal-oriented effort, delimited in time, with a clear objective. That`s what makes this concept different from the old idea of issue publics and from the public sphere.

In this sense, it is not a problem that Twitter data doesn`t represent the general population or the voters, as that is not the point. A campaign sphere does not intend to represent voters, but the opinion leaders that support a candidate, serving as a measure of how a candidate resonates with her network. The concept of campaign sphere is made possible by the public`s use of digital media, and at the same time implies a methodology for researchers to employ in studying campaign spheres: using Twitter data as a measure of mobilization in electoral campaigns.

In the mass media era, electoral campaigns were limited by organizations, journalists who covered them and people who participated. Communication was constrained and one-way oriented. Digital media allows a campaign sphere to operate with certain properties. First, there is a direct information flow between the candidate and the actors who participate

in the campaign. Second, the candidate`s image and frames are not rigid or constrained anymore, but can be molded by opinion leaders exercising an editor role – selecting which frames and issues might be amplified, contained or even transformed into different meanings, as far as they can result in positive interactions for the candidate.

In many ways, a campaign sphere can make the candidates` messages better and more engaging. However, a campaign sphere will be more effective if the candidate and opinion leaders come to a shared understanding: opinion leaders redistribute the candidate`s messages, and the candidate sends messages that are appealing to opinion leaders. This is merely a way for strategic coordination, and not for deliberation, which will take place in the larger public sphere.

In a broader perspective, mobilization will affect vote behavior, together with other variables. As a consequence, campaign spheres can be used as a proxy variable for public opinion, which can not be accurately observed and measured with Twitter data. Because these spheres exert such influence on public opinion, I expect a strong correlation between messages in campaign spheres and overall public opinion. Even if campaign spheres can`t objectivelly be considered a sample of public opinion, they are a record of communication connected to campaigns that are, taken together, influential on opinions and therefore should contain predictive properties.

2.4. Methods

As the crucial communicative structure of a campaign sphere, information contained

in social media might predict electoral outcomes. I propose a methodology that includes keywords and topics that are part of the campaign sphere, and excludes terms found outside of the campaign sphere (public issues that are avoided by candidates), or that are used by both opponents. Other researchers have applied user-generated labels, known as hashtags, to build training sets to classify tweets (Amador et al., 2017). This method proved to be effective to predict the Brexit vote to the European Union referendum in the United Kingdom. My approach takes a different stand, as I bring a more prominent role to these labels on data collection, avoiding noise in the data.

Following the advice of Kim et al. (2013), I compile the list of search terms in an iterative process, using campaign-generated messages as a starting point. The methodology is constituted by three steps:

1 – Collect all the data from a candidate Twitter handle.

2 – Using data collected on step 1, identify hashtags, political slogans and frames, Twitter handles of politicians and political groups that are constantly cited by the candidate, but not by the opponents. Terms or hashtags that are used by more than one candidate, or are also used for non-political purposes, should be avoided.

3 – Using the candidate Twitter handle and other keywords identified on step 2, collect data from the campaign sphere.

Example of some keywords used by campaign spheres in Venezuela, in 2013 election, can be observed in Figure 1. On campaign sphere A, incumbent candidate Nicolas Maduro used to quote and cite frequently the Twitter handle of convalescent and then deceased president Hugo Chavez, @chavezcandanga. Other hashtags commonly used by

@nicolasmaduro were #ChavezTeLoJuro (Chavez, I swear), #PSUV (referring to the United Socialist Party of Venezuela) and #PalanteMaduro (Go ahead, Maduro). In campaign sphere B, challenger Henrique Capriles (@hcapriles) would publicize to his network hashtags like #AunHayUnCamino (There is still a way), #MentiraFresca (Fresh lie), #JuntosSinMiedo (Together without fear) and #VenezuelaSomosTodos (We are all Venezuela).

Figure 2.1. Campaign spheres in Venezuela presidential election, 2013

In order to delimit the boundaries of a campaign sphere, one should not consider terms that, even if consistently used by a candidate, can also lead to posts that don`t belong to the campaign, or not even are about politics. In this category are keywords like #Video, #Debate and geographic tags – #Venezuela, #ElTigre, #ElHatillo.

While attacking the opponent, both candidates would avoid using the rival`s Twitter handle, but mostly their last names. As a consequence, “Maduro” and “Capriles” are used in Twitter posts from the two campaign spheres, which corresponds to Intersect A,B in Figure 1. If one decides to use “Maduro” as a keyword to search Twitter posts about Nicolas Maduro, the result is that she would get manifestations both supporting and attacking the incumbent candidate, resulting in bias and a misrepresentation of the campaign sphere. The same could be said for using “Capriles”, or other words or hashtags cited by both candidates, like #Vota (Vote) or hashtags about debates. As a result, data collected with a candidate's campaign sphere terms will necessarily bring a more precise picture of the candidate`s actual support on the Twitter sphere.

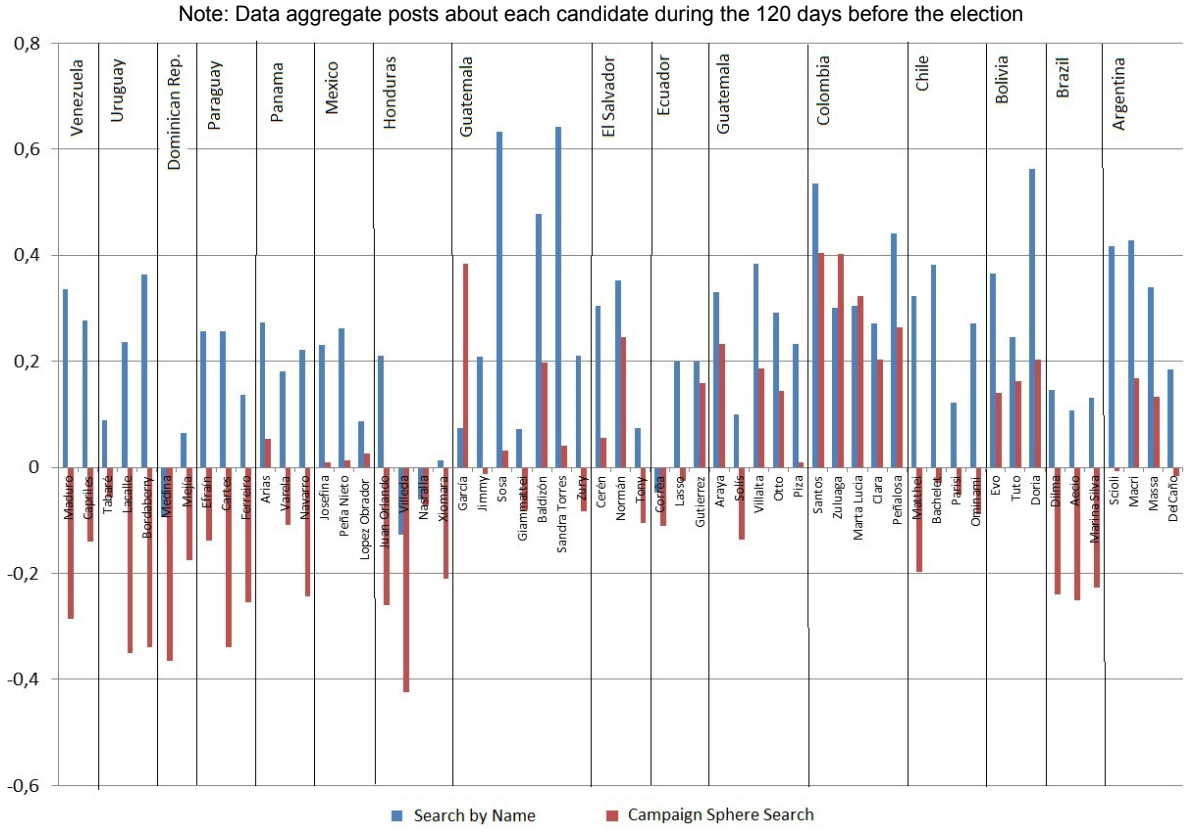
A name is a frame. If you send or receive information about a candidate using her first name, last name, nickname or Twitter handle, there is a change on the likelihood of negativity on the information. This is demonstrated by sentiment analysis of the 57 electoral campaigns in 16 Latin American countries. Graph 2.1 displays Twitter posts about each candidate according to their Net Negative, a measure of sentiment analysis that weighs negative and positive tweets about a candidate[4]. As observed in most of the cases, information about the candidate's own name has greater Net Negative than posts that were collected with the campaign sphere method.

In some ways, the different approaches might result in very different results. In Brazil, Chile, Paraguay, Uruguay and Venezuela, Twitter data collected with the candidates` names present Net Negative greater than zero, which means that there are more negative

[4] Net Negative is calculated by the negative posts about a candidate minus the positive posts, divided by the sum of negative and positive posts, as following:
Net Negative = (Negative – Positive)/ (Negative + Positive)
Neutral tweets were not used, as they do not express rejection or preference for a candidate.

posts than positive posts about these candidates. Yet the campaign sphere data from these same countries have Net Negative lower than zero – more positive than negative posts.

Graph 2.1. Net Negative of presidential candidates in Latin America, 2012-2015



Using different search terms, one can also get very different predictions about the election result. In Venezuela, search by the candidates` names will return a dataset in which president Maduro has greater Net Negative than the opposition leader Henrique Capriles. The campaign sphere search will give an inverse relationship, with Capriles having a greater Net Negative than Maduro. That`s a better estimate for the election result, won by Maduro. In Brazil, search by name would put incumbent Dilma Rousseff and challenger Marina Silva

with better chances for the second round. Campaign sphere would predict Dilma and Aecio Neves – the actual result.

Besides Brazil and Venezuela, campaign sphere search terms resulted in better predictions for Bolivia, Costa Rica, Dominican Republic, Ecuador, Honduras, Mexico and Paraguay. But there were also cases that forecasting was worse – Argentina, Panama and Uruguay – and countries in which there wasn`t significant change in the distribution of the candidates` ratings – Chile, Colombia, El Salvador, Guatemala and Dominican Republic.

2.4.1. Sample and procedures

I use two different datasets. First, I collected the results of preelectoral polls that were publicized by news media outlets during the 120 days before the first or only round in the elections of 16 Latin American countries, from 2012 to 2015. This dataset comprises 379 polls. Exit polls were not used, as most of the countries forbid polls on Election Day and days closer to election. Second, I collected Twitter posts using search terms defined by the campaign sphere method (*the keywords are on Appendix I*), also during the 120 days before election. The measures only consider vote intentions or Twitter posts about the politicians who are leading the election, up to the Effective Number of Candidates. Undecided voters or those who decided not to vote, to vote blank or to vote for other minority candidates were not counted. Twitter posts were filtered to only include participations from each country that was holding the election, and not from abroad.

Table 2.2. Sample of Twitter posts by country, 2012-2015

Country	Candidates	Date	Posts
Argentina	4	27/06/15 to 25/10/15	4,231,908
Bolivia	3	14/06/14 to 12/10/14	53,493
Brasil	3	07/06/14 to 05/10/14	2,999,347
Chile	4	20/07/13 to 17/11/13	1,055,428
Colombia	5	25/01/14 to 25/05/14	3,233,812
Costa Rica	5	05/10/13 to 02/02/14	165,890
Dominican Republic	2	21/01/12 to 20/05/12	566,127
Ecuador	3	20/10/12 to 17/02/13	387,272
El Salvador	3	05/10/13 to 02/02/14	430,550
Guatemala	7	09/05/15 to 06/09/15	147,886
Honduras	3	27/07/13 to 24/11/13	261,017
Mexico	4	03/03/12 to 01/07/12	6,123,154
Panama	3	04/01/14 to 04/05/14	1,054,598
Paraguay	3	22/12/12 to 21/04/13	164,719
Uruguay	3	28/06/14 to 26/10/14	469,461
Venezuela	2	15/12/12 to 14/04/13	8,063,869
Total	**57**	**--**	**29,408,527**

As Twitter offers very poor archive and search functions, limiting the Application Program Interface to retrieve data only from the last seven days, I collected older posts through the platform Crimson-Hexagon, a web-based library updated in real-time. Posts were searched using keywords and then downloaded for off-line analysis. The distribution of posts by country is on Table 2.

2.4.2. Measures

In order to verify if social media data provides additional predictive power beyond polls and other standard variables used in forecasting models, I use two different dependent variables:

Percentage of votes – Percentage of votes a candidate received in a country during the first or single round. The measure only considers politicians who are leading the ballots count, up to the Effective Number of Candidates. I don`t count blank votes or votes for other minority candidates.

Elected – A dichotomous variable in which 0 refers to a candidate who was not elected and 1 refers to a candidate who was elected in the first, second or only round.

Independent variables:

Polls – Polling forecast was calculated by the moving average of each candidate`s percentage points in four periods of 30 days – between 120 and 91 days from the election; between 90 and 61 days; between 60 and 31 days; between 30 and election day. Used as a predictor, the running mean of repeated sampling is recommended to overcome the presence of publication effects from surveys or polls (Bowden, 1987). As the numbers come from different polling

firms, with different methodologies, this measure also dilutes any bias that might be present in a particular case. By calculating the mean of different polls, I give more accuracy to polling forecast and make it a harder test in the comparison with Twitter data.

Volume on Twitter – This variable is calculated by the percentage of posts that each candidate`s campaign sphere had in four periods of 30 days – between 120 and 91 days from the election; between 90 and 61 days; between 60 and 31 days; between 30 and election day.

Net Negative on Twitter – Sentiment analysis uses pre-defined sentiment categories, in an algorithm developed by Crimson Hexagon over 500,000 Twitter posts that were hand-labeled as positive, negative or neutral. These labeled posts were used to calculate the frequency distribution of each word, negated word, emoticon, etc. present in documents across the positive, negative and neutral categories. These frequency distributions are then used to construct a model that analyzes each new post and classifies it by sentiment. Net Negative is calculated by the negative posts about a candidate minus the positive posts, divided by the sum of negative and positive posts, as following:

Net Negative = (Negative – Positive)/ (Negative + Positive)

Neutral tweets were not used, as they do not express rejection or preference for a candidate.

Incumbent – A dichotomous variable in which 0 means a challenger and 1 refers to an incumbent candidate.

In order to verify any bias on the data, I also use the following variables:

Two Round System – A dichotomous variable in which 0 means a country with Plurality System and 1 represents a country with Two Round System.

Party Ideology – I use Baker`s Party Ideology Scores for Latin American presidential elections (Baker & Greene, 2011). The scores are based on the 1 ↔ 20 Wiesehomeier-Benoit (W-B) scale, the mean placement by experts on a simple left-to-right scale, running from extreme left (1) to extreme right (20) (Wiesehomeier & Benoit, 2009). In the 2012-2015 cycle, only two candidates don`t have a Party Ideology Score: the independent candidate Franco Parisi, from Chile, who would identify himself as "social liberal", and Dr. Giammattei, from Guatemala.

Population – Total population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship. The values are midyear estimates during election year. Source is World Bank open data.

GNI per capita growth – Annual percentage growth rate of Gross National Income per capita based on constant local currency during election year. GNI per capita is gross national income divided by midyear population. GNI (formerly GNP) is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the

valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Source is World Bank national accounts data, and OECD National Accounts data files.

2.5. Findings

In all models to estimate votes, poll data has higher coefficients than Twitter Volume or Net Negative. First, I use OLS regressions to estimate votes at four different moments: 30 days before Election Day; 60 to 31 days before Election Day; 90 to 61 days before; and 120 to 91 days before. All models are controlled by incumbency. As predicted by theory, polls have less bias and more accuracy during the days closer to the election. Yet Volume on Twitter and Net Negative don`t demonstrate much change on performance along the 90 days before the Election Day.

Trials of OLS regressions using together Polls, Twitter Volume and Net Negative were not successful. Only model 4b, using data between 60 and 31 days before the Election Day, had statistically significant coefficients for both Polls and Twitter Volume. In most of these models, Twitter Volume and Net Negative fail the t-test, and there is one case in which Twitter Volume becomes negative, giving signs of multicollinearity (Chong & Jun, 2005; Farrar & Glauber, 1967; Mansfield & Helms, 1982).

Table 2.3. OLS Estimates predicting Percentage of Votes on the First or Single Round – 30 Days Before to Election Day

	Model 1a	Model 2a	Model 3a	Model 4a
Intercept	0.014 (0.015)	0.090** (0.027)	0.230*** (0.021)	0.022 (0.016)
Polls	0.953*** (0.053)	--	--	0.946*** (0.077)
Volume on Twitter	--	0.543*** (0.080)	--	-0.026 (0.066)
Net Negative on Twitter	--	--	-0.204* (0.082)	-0.063# (0.037)
Incumbent	-0.011 (0.019)	0.135*** (0.032)	0.164*** (0.040)	-0.010 (0.020)
Residual standard error	0.054 on 50 degrees of freedom	0.106 on 54 degrees of freedom	0.137 on 54 degrees of freedom	0.054 on 48 degrees of freedom
Multiple R-Squared	0.897	0.583	0.310	0.903

Note: The dependent variable is percentage of votes on the first or single round on 16 Latin American countries, between 2012 and 2015: Argentina, Bolivia, Brasil, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Panama, Paraguay, Republica Dominicana, Uruguay, Venezuela and Ecuador. N of candidates= 57. N of candidates for models 1a and 4a=53, excluding candidates from Honduras, where the electoral laws forbid polls during the 30 days before the election. Cell entries are coefficients with standard errors in parentheses. #p ≤ 0.09 *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Table 2.4. OLS Estimates predicting Percentage of Votes on the First or Single Round – 60 to 31 days Before Election Day

	Model 1b	Model 2b	Model 3b	Model 4b
Intercept	0.050* (0.020)	0.089** (0.027)	0.233*** (0.022)	0.038# (0.020)
Polls	0.802*** (0.070)	--	--	0.672*** (0.084)
Volume on Twitter	--	0.548*** (0.082)	--	0.160* (0.070)
Net Negative on Twitter	--	--	-0.193* (0.083)	-0.052 (0.044)
Incumbent	0.016 (0.027)	0.134*** (0.032)	0.165*** (0.041)	0.028 (0.026)
Residual standard error	0.072 on 52 degrees of freedom	0.107 on 54 degrees of freedom	0.138 on 54 degrees of freedom	0.069 on 50 degrees of freedom
Multiple R-Squared	0.800	0.579	0.300	0.823

Note: The dependent variable is percentage of votes on the first or single round on 16 Latin American countries, between 2012 and 2015: Argentina, Bolivia, Brasil, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Panama, Paraguay, Republica Dominicana, Uruguay, Venezuela and Ecuador. N of candidates= 57. N of candidates for models 1b and 4b= 55, excluding politicians that were not on the polls 30 days before the election: Alejandro Giammattei and Mario David Garcia (Guatemala),Cell entries are coefficients with standard errors in parentheses. *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005 # p ≤ 0.07

Table 2.5. OLS Estimates predicting Percentage of Votes on the First or Single Round – 90 to 61 Days Before Election Day

	Model 1c	Model 2c	Model 3c	Model 4c
Intercept	0.065*** (0.022)	0.097*** (0.029)	0.228*** (0.022)	0.050* (0.024)
Polls	0.758*** (0.081)	--	--	0.670*** (0.098)
Volume on Twitter	--	0.534*** (0.089)	--	0.132 (0.087)
Net Negative on Twitter	--	--	-0.127 (0.091)	-0.023 (0.056)
Incumbent	-0.004 (0.032)	0.122** (0.034)	0.178*** (0.042)	0.012 (0.032)
Residual standard error	0.080 on 49 degrees of freedom	0.112 on 54 degrees of freedom	0.142 on 54 degrees of freedom	0.080 on 47 degrees of freedom
Multiple R-Squared	0.747	0.537	0.257	0.761

Note: The dependent variable is percentage of votes on the first or single round on 16 Latin American countries, between 2012 and 2015: Argentina, Bolivia, Brasil, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Panama, Paraguay, Republica Dominicana, Uruguay, Venezuela and Ecuador. N of candidates= 57. N of candidates for models 1c and 4c= 55, excluding politicians that hadn't defined their candidacy or were not on the polls 60 days before the election: Nicolas Del Cano (Argentina), Marina Silva (Brasil), Mario David Garcia (Guatemala), Nicolas Maduro and Henrique Capriles (Venezuela). Cell entries are coefficients with standard errors in parentheses. *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

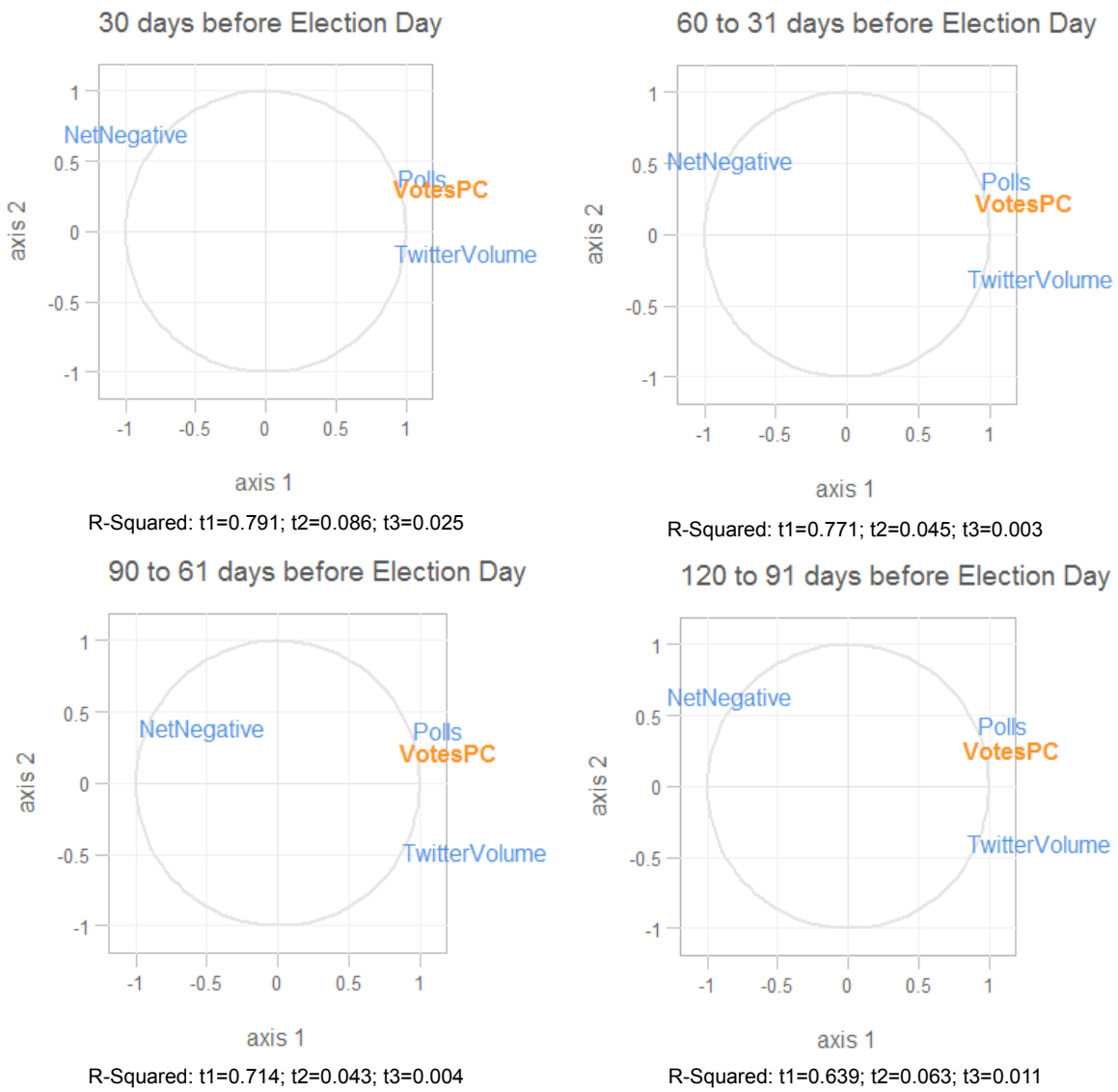
Table 2.6. OLS Estimates predicting Percentage of Votes on the First or Single Round – 120 to 91 Days Before Election Day

	Model 1d	Model 2d	Model 3d	Model 4d
Intercept	0.083*** (0.022)	0.138*** (0.030)	0.229*** (0.022)	0.084** (0.025)
Polls	0.644*** (0.073)	--	--	0.613*** (0.083)
Volume on Twitter	--	0.386*** (0.091)	--	0.022 (0.084)
Net Negative on Twitter	--	--	-0.165* (0.077)	-0.089 (0.055)
Incumbent	0.032 (0.032)	0.123** (0.039)	0.171*** (0.041)	0.039 (0.032)
Residual standard error	0.089 on 49 degrees of freedom	0.125 on 54 degrees of freedom	0.139 on 54 degrees of freedom	0.088 on 47 degrees of freedom
Multiple R-Squared	0.704	0.423	0.291	0.723

Note: The dependent variable is percentage of votes on the first or single round on 16 Latin American countries, between 2012 and 2015: Argentina, Bolivia, Brasil, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Panama, Paraguay, Republica Dominicana, Uruguay, Venezuela and Ecuador. N of candidates= 57. N of candidates for models 1d and 4d= 52, excluding politicians that hadn't defined their candidacy or were not on the polls 90 days before the election: Marina Silva (Brasil), Evelyn Matthei (Chile), Alejandro Giammattei (Guatemala), Nicolas Maduro and Henrique Capriles (Venezuela). Cell entries are coefficients with standard errors in parentheses. *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

To verify the relations between Votes (%), Polls, Twitter Volume and Net Negative, avoiding the problems of multicollinearity, I use Partial Least Squares Regressions (Sanchez & Sanchez, 2012). The results are plotted in circles of correlations (Graph 2.2), indicating that Polls have closer correlation with Votes in all four months before Election Day.

Graph 2.2. Circle of Correlations in Latin American campaign spheres (PLS)



Note: Models use PLS regression with 3 components.

Controled by incumbency, Twitter Volume and Net Negative can be used as predictors of vote. As seen in the OLS regressions, in all the different timelines, polling models have stronger estimates than models using data with Volume on Twitter or Net Negative, while the latter is the worst estimator. The only advantage demonstrated by Twitter data is the increased degrees of freedom. This is explained partially because polls omit names who haven`t formalized candidacy and politicians from minority parties. There are also cases in which polls are restricted because of electoral rules.

I also use binomial logit models predicting Elected – a dummy variable indicating who won in the first, only or second round. The results, available on tables 2.7 to 2.10, confirm that poll ratings have a greater impact on the likelihood of being elected, but the difference between the two parameters are not so great between 120 and 61 days before the Election Day. In the same way as observed in the OLS regressions, the coefficients for polls get higher the closer the interviews are to Election Day. Volume on Twitter can also be used as a predictor to being elected, but there is not much change on performance through time. Net Negative doesn`t have significant values at any time.

Following, I take a closer look at how these parameters behave on each case. The analysis by country can demonstrate better how these variables are related to context, the political and media systems that interact during elections. As there are few elections organized under the new media environment, I use a pooled OLS estimation, combining the different cross sections of data collected in a single sampled election – 120 to 91 days before Election Day; 90 to 61 days before; 60 to 31 days before; 30 days before – to produce a single data set. I also use PLS regression. All the cases are summarized on table 2.26.

Table 2.7. Binomial Logit predicting Elected – 30 Days Before to Election Day

	Model 1e	Model 2e	Model 3e	Model 4e
Intercept	-4.733*** (1.294)	-3.087*** (0.874)	-1.633*** (0.427)	-4.930*** (1.452)
Polls	11.422** (3.690)	--	--	11.962* (4.792)
Volume on Twitter	--	4.871* (2.139)	--	0.067 (3.380)
NetNegative on Twitter	--	--	-1.406 (1.461)	0.825 (1.947)
Incumbent	0.104 (0.870)	1.810* (0.704)	1.816** (0.656)	0.091 (0.935)
Cragg&Uhler`s Pseudo R-Squared	0.482	0.322	0.215	0.485

Note: The dependent variable is Elected=1 on the first, single or second round on 16 Latin American countries, between 2012 and 2015: Argentina, Bolivia, Brasil, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Panama, Paraguay, Republica Dominicana, Uruguay, Venezuela and Ecuador. N of candidates= 57. N of candidates for model 1a=53, excluding candidates from Honduras, where the electoral laws forbid polls during the 30 days before the election. Cell entries are coefficients with standard errors in parentheses. *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Table 2.8. Binomial Logit predicting Elected – 60 to 31 days Before Election Day

	Model 1f	Model 2f	Model 3f	Model 4f
Intercept	-4.276*** (1.167)	-2.845*** (0.819)	-1.670*** (0.438)	-4.227*** (1.218)
Polls	9.508** (3.224)	--	--	9.366* (3.795)
Volume on Twitter	--	4.170* (2.035)	--	-0.153 (2.789)
NetNegative on Twitter	--	--	-2.510 (1.589)	-1.399 (1.794)
Incumbent	0.637 (0.800)	1.757*** (0.684)	1.860** (0.677)	0.653 (0.838)
Cragg&Uhler`s Pseudo R-Squared	0.459	0.292	0.252	0.471

Note: The dependent variable is Elected=1 on the first, single or second round on 16 Latin American countries, between 2012 and 2015: Argentina, Bolivia, Brasil, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Panama, Paraguay, Republica Dominicana, Uruguay, Venezuela and Ecuador. N of candidates= 57. N of candidates for model 1f= 55, excluding politicians that were not on the polls 30 days before the election: Alejandro Giammattei and Mario David Garcia (Guatemala),Cell entries are coefficients with standard errors in parentheses. *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Table 2.9. Binomial Logit predicting Election – 90 to 61 Days Before Election Day

	Model 1g	Model 2g	Model 3g	Model 4g
Intercept	-3.144*** (0.899)	-3.304*** (0.912)	-1.670*** (0.437)	-4.032*** (1.199)
Polls	6.492* (2.725)	--	--	4.269 (3.131)
Volume on Twitter	--	5.675* (2.305)	--	4.826 (3.035)
NetNegative on Twitter	--	--	-1.469 (1.600)	-0.390 (1.801)
Incumbent	0.507 (0.840)	1.677* (0.707)	1.953** (0.680)	0.806 (0.904)
Cragg&Uhler`s Pseudo R-Squared	0.331	0.345	0.213	0.389

Note: The dependent variable is Elected=1 on the first, single or second round on 16 Latin American countries, between 2012 and 2015: Argentina, Bolivia, Brasil, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Panama, Paraguay, Republica Dominicana, Uruguay, Venezuela and Ecuador. N of candidates= 57. N of candidates for model 1g= 55, excluding politicians that hadn't defined their candidacy or were not on the polls 60 days before the election: Nicolas Del Cano (Argentina), Marina Silva (Brasil), Mario David Garcia (Guatemala), Nicolas Maduro and Henrique Capriles (Venezuela). Cell entries are coefficients with standard errors in parentheses. *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Table 2.10. Binomial Logit predicting Election – 120 to 91 Days Before Election Day

	Model 1h	Model 2h	Model 3h	Model 4h
Intercept	-3.101*** (0.826)	-2.881*** (0.802)	-1.639*** (0.426)	-3.647*** (1.053)
Polls	5.913** (2.282)	--	--	4.940 (2.377)
Volume on Twitter	--	4.485* (2.039)	--	2.561 (2.617)
NetNegative on Twitter	--	--	-1.383 (1.309)	-1.258 (1.618)
Incumbent	0.727 (0.830)	1.546* (0.694)	1.866** (0.666)	0.820 (0.846)
Cragg&Uhler`s Pseudo R-Squared	0.371	0.313	0.219	0.413

Note: The dependent variable is Elected=1 on the first, single or second round on 16 Latin American countries, between 2012 and 2015: Argentina, Bolivia, Brasil, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Panama, Paraguay, Republica Dominicana, Uruguay, Venezuela and Ecuador. N of candidates= 57. N of candidates for model 1h= 52, excluding politicians that hadn't defined their candidacy or were not on the polls 90 days before the election: Marina Silva (Brasil), Evelyn Matthei (Chile), Alejandro Giammattei (Guatemala), Nicolas Maduro and Henrique Capriles (Venezuela). Cell entries are coefficients with standard errors in parentheses. *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Argentina

No matter the distance from Election Day, all polling firms overestimated the incumbent candidate, Daniel Scioli, and most of them underestimated the challengers Mauricio Macri and Sergio Massa. Leftist candidate Nicolas Del Cano, who received about 3% of the valid votes, is not mentioned in most of the polls. Five polls presented a deviation greater than 10% for the front-runner, Scioli. Another mistake was to predict a victory for Daniel Scioli in the first round, while the candidate had to dispute a runoff election against Mauricio Macri, who finally won the competition. One of the polling firms (Gonzalles y Valladares) predicted that Sergio Massa would go to the second round against Daniel Scioli.

Table 2.11. OLS Estimates predicting Percentage of Votes in Argentina (2015)

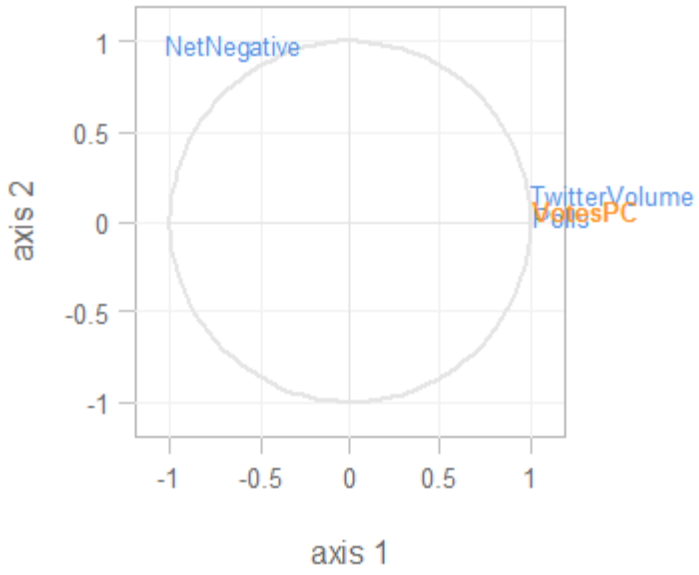
	Model 1i	Model 2i	Model 3i	Model 4i	Model 5i
Intercept	0.027* (0.011)	0.035# (0.017)	0.200*** (0.045)	0.036* (0.013)	0.028** (0.009)
Polls	0.954*** (0.045)	--	--	0.484** (0.122)	0.671*** (0.095)
Volume on Twitter	--	0.853*** (0.068)	--	0.378* (0.123)	0.278** (0.086)
Net Negative on Twitter	--	--	0.039 (0.275)	-0.016 (0.049)	-0.041 (0.034)
Incumbent	-0.062** (0.016)	0.009 (0.025)	0.190* (0.078)	--	-0.051** (0.013)
Residual standard error	0.019 on 12 DF	0.035 on 13 DF	0.127 on 13 DF	0.022 on 11 DF	0.015 on 10 DF
Multiple R-squared	0.983	0.949	0.333	0.979	0.992

N=16. N for models 1, 4 and 5= 15. Cell entries are coefficients with standard errors in parentheses.
#p≤ 0.06 *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

In Argentina, Twitter Volume data is able to predict that Scioli and Mauricio Macri are going to the runoff. On the period between 30 days before and election day, Twitter volume

captures Macri`s momentum, putting him ahead of Scioli. The incumbent candidate actually went first, but Macri would eventually win the runoff election.

Graph 2.3. Circle of Correlation – PLS predicting Votes in Argentina (2015)



Note: Model uses 3 components. R-Squared: t1=0.975; t2=0.004; t3=0.004.

Bolivia

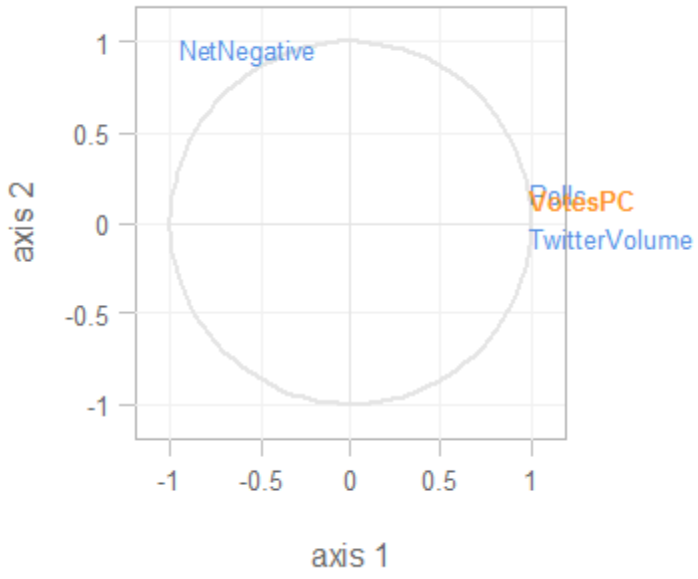
All preelection polls correctly predicted that president Evo Morales would be re-elected in the first round. However, most of the polls overestimated the margins in which the incumbent candidate would win, underestimating the numbers for opposition leader Samuel Medina. Volume on Twitter also forecast Evo Morales wining in the first round, ahead of Medina. However, Twitter data would mostly underestimated the numbers for Morales, detecting only a large increase on his share in the last 30 days before elections.

Table 2.12. OLS Estimates predicting Percentage of Votes in Bolivia (2014)

	Model 1j	Model 2j	Model 3j	Model 4j	Model 5j
Intercept	0.013 (0.017)	0.107* (0.044)	0.167** (0.038)	0.053* (0.022)	0.020 (0.009)
Polls	1.138*** (0.107)	--	--	0.803*** (0.068)	1.213*** (0.119)
Volume on Twitter	--	0.326 (0.178)	--	0.055 (0.094)	-0.011 (0.061)
Net Negative on Twitter	--	--	0.051 (0.149)	-0.029 (0.059)	-0.085# (0.040)
Incumbent	-0.179* (0.063)	0.354** (0.076)	0.475*** (0.046)	--	-0.220** (0.060)
Residual standard error	0.021 on 9 DF	0.065 on 9 DF	0.075 on 9 DF	0.029 on 8 DF	0.018 on 7 DF
Multiple R-squared	0.994	0.942	0.921	0.990	0.997

N=12. Cell entries are coefficients with standard errors in parentheses. #p≤ 0.07 *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Graph 2.4. Circle of Correlation – PLS predicting Votes in Bolivia (2014)



Note: Model uses 3 components. R-Squared: t1= 0.946; t2=0.016; t3=0.028.

Brazil

Again the incumbent candidate, Dilma Rousseff, is overestimated by most polling firms. The leftist candidate Marina Silva is also overestimated, while the oppositionist Aecio Neves is underestimated. In the two weeks before the election, surveys would still not agree who was going to the second round against then president Dilma Rousseff. Aécio would be tied with Marina Silva. Aécio would have 17% to 24%, while Marina would have 21% to 30%. Nevertheless, the trends would signal that Aécio was incrementing vote preference, while Marina Silva would be slowing down her pace.

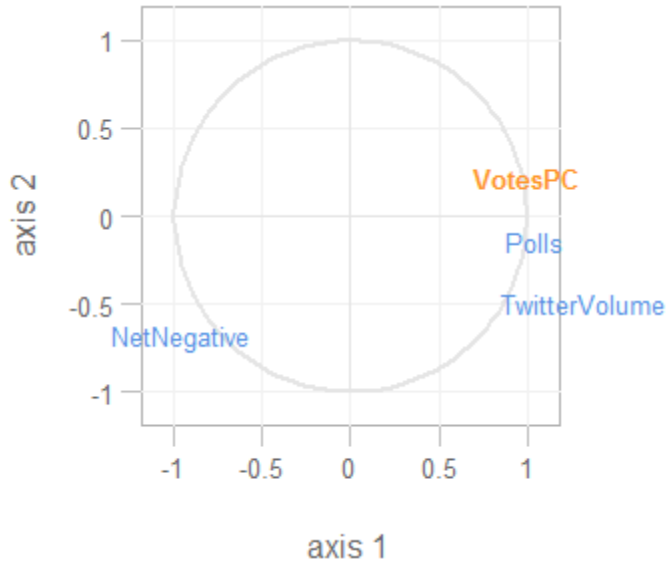
Twitter data would put Dilma and Aécio ahead from 120 to 31 days before the election, though some Dilma estimates would indicate the possibility of her winning in the first round. In the 30 days before the election, Marina Silva`s share on Twitter would increase, putting her before Aécio.

Table 2.13. OLS Estimates predicting Percentage of Votes in Brazil (2014)

	Model 1k	Model 2k	Model 3k	Model 4k	Model 5k
Intercept	0.351** (0.074)	0.274*** (0.030)	0.275*** (0.044)	0.166# (0.079)	0.295* (0.084)
Polls	-0.147 (0.230)	--	--	0.326 (0.219)	-0.105 (0.255)
Volume on Twitter	--	0.048 (0.099)	--	-0.021 (0.144)	-0.029 (0.111)
Net Negative on Twitter	--	--	-0.042 (0.161)	-0.306 (0.229)	-0.255 (0.178)
Incumbent	0.162* (0.066)	0.131* (0.048)	0.147** (0.037)	--	0.150# (0.066)
Residual standard error	0.054 on 7 DF	0.059 on 9 DF	0.060 on 9 DF	0.070 on 6 DF	0.054 on 5 DF
Multiple R-squared	0.659	0.650	0.644	0.512	0.758

N=12. N of observations for models 1, 4 and 5= 10. Cell entries are coefficients with standard errors in parentheses. #p≤ 0.08 *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Graph 2.5. Circle of Correlation – PLS predicting Votes in Brazil (2014)



Note: Model uses 3 components. R-Squared: t1= 0.454; t2= 0.043; t3= 0.015.

Chile

In Chile, 120 to 91 days before the election, incumbent candidate Evelyn Matthei had not defined her candidacy and was not accounted in surveys. In the three months before Election Day, most of the polls accurately predicted a second round between Matthei and socialist ex-president Michelle Bachelet, but some were falsely forecasting Bachelet winning in the first round.

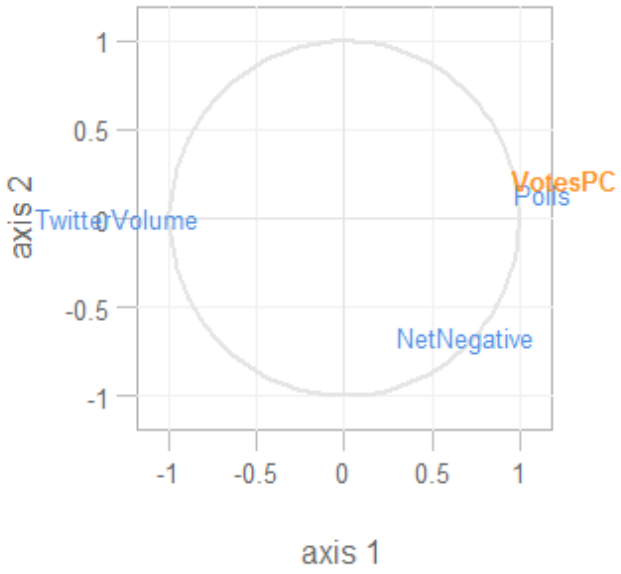
Volume on Twitter falsely predicted a majority for independent candidate Franco Parisi, and sometimes Progressist Party`s candidate Enríquez-Ominami went second. Front-runner Michelle Bachelet would show up as third or fourth place.

Table 2.14. OLS Estimates predicting Percentage of Votes in Chile (2013)

	Model 1l	Model 2l	Model 3l	Model 4l	Model 5l
Intercept	0.039 (0.028)	0.511*** (0.076)	0.267*** (0.059)	0.073 (0.073)	0.093 (0.077)
Polls	0.764*** (0.080)	--	--	0.737*** (0.106)	0.723*** (0.109)
Volume on Twitter	--	-0.947** (0.239)	--	-0.166 (0.143)	-0.221 (0.158)
Net Negative on Twitter	--	--	0.431 (0.554)	-0.285 (0.227)	-0.349 (0.241)
Incumbent	0.030 (0.040)	-0.099 (0.075)	0.087 (0.127)	--	-0.039 (0.044)
Residual standard error	0.062 on 12 DF	0.119 on 13 DF	0.173 on 13 DF	0.053 on 11 DF	0.054 on 10 DF
Multiple R-squared	0.885	0.549	0.0492	0.924	0.929

N=16. N of observations for models 1, 4 and 5= 15. Cell entries are coefficients with standard errors in parentheses. #p≤ 0.10 *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Graph 2.6. Circle of Correlation – PLS predicting Votes in Chile (2013)



Note: Model uses 3 components. R-Squared: t1= 0.871; t2= 0.043; t3= 0.010.

Colombia

The incumbent, president Juan Manuel Santos, is overestimated by most polling firms, as is the Green Party candidate, Enrique Penalosa. In Colombia, 90 days before the election, Santos, running to be reelected, would have numbers on the polls from 26% to 51% of the vote preference. Sixty days before the elections, the surveys would disagree on who would go to second round against Santos. Datexco and Centro Nacional de Consultoría would give advantage to Enrique Peñalosa, with 17,1% and 16%, while Óscar I. Zuluaga would have 14,6% and 10%. Yet Gallup and Ipsos, at the same time frame, would give 15,6% and 9% to Zuluaga, ahead of Peñalosa, with 11,3% and 8% of the vote preference. Only in the two weeks before the election, surveys would agree that both Santos and Zuluaga would go to the second round, appearing to be technically tied in first place. Santos would have 22 to 31,3% of the vote choice, while Zuluaga would vary between 23,9% to 29,6%. In the ballots, Zuluaga would have more votes than Santos: 29,25% against 25,69%.

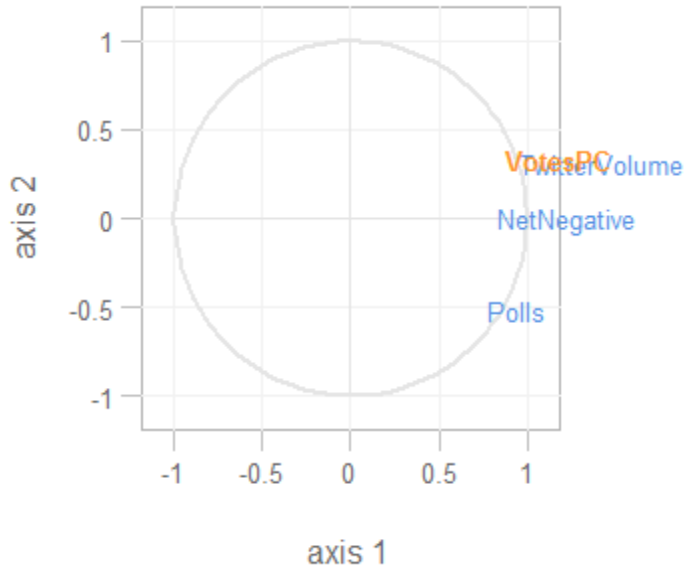
On all four months before election, Twitter Volume data had Zuluaga and Santos together on the second round. Zuluaga correctly shows up ahead of Santos, and Peñalosa is way behind, never perceived as a threat to other candidates.

Table 2.15. OLS Estimates predicting Percentage of Votes in Colombia (2014)

	Model 1m	Model 2m	Model 3m	Model 4m	Model 5m
Intercept	0.130* (0.047)	0.122*** (0.012)	0.043 (0.052)	0.111** (0.033)	0.166*** (0.040)
Polls	0.342 (0.287)	--	--	-0.063 (0.090)	-0.341* (0.158)
Volume on Twitter	--	0.380*** (0.022)	--	0.390*** (0.067)	0.447*** (0.066)
Net Negative on Twitter	--	--	0.459* (0.165)	0.075 (0.110)	-0.012 (0.108)
Incumbent	0.007 (0.083)	0.012 (0.022)	0.044 (0.040)	--	0.084* (0.040)
Residual standard error	0.075 on 17 DF	0.036 on 17 DF	0.065 on 17 DF	0.036 on 16 DF	0.033 on 15 DF
Multiple R-squared	0.266	0.833	0.454	0.840	0.875

N=20. Cell entries are coefficients with standard errors in parentheses. *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Graph 2.7. Circle of Correlation – PLS predicting Votes in Colombia (2014)



Note: Model uses 3 components. R-Squared: t1= 0.731; t2= 0.102; t3= 0.007.

Costa Rica

This would be the most prominent case of polling failure in the 2012-2015 Latin American election cycle. Luis Guillermo Solis, who would eventually win the election, showed up in the polls at fourth place. In almost 60 days before the first round, CID/Gallup would predict that the incumbent candidate, Johnny Araya, would win the election in the first round. A few days after, Unimer/La Nacion would get another picture, in which Villalta was in first place, with 22% of the vote preference, while Johnny Araya and Otto Guevara were technically tied with 19% each. Solis would have 8% of the votes, and Piza 5%. In the first round, Solis had 30.6% of the votes, slightly ahead of Johnny Araya, with 29.7%.

The newspaper La Nación decided to cancel the publication of an electoral poll conducted by the firm Unimer and to be released three days before the election. In its editorials, the newspaper explained that there were still 40% of undecided voters, who would only define their preference in the last days or even in the poll line (La Nación, 2014). "The election results would be necessarily different from the poll results", justified. The newspaper assured that their decision was not taken because of the poll results. "The national culture about polls, in part promoted by politicians who applaud or censor the results, and the confusion created by the plurality of polling firms and methodologies, creates fertile ground for conspiracy theories." Before the runoff election, Araya resigned from his candidacy, while facing funding shortage to campaign and after polls predicted Solís win with almost 70% of the votes (Vizcaíno et al., 2014).

During all the four months before the election, Twitter data would accurately predict Solis as the front-runner. Johnny Araya would mostly stay behind him, with the exception of

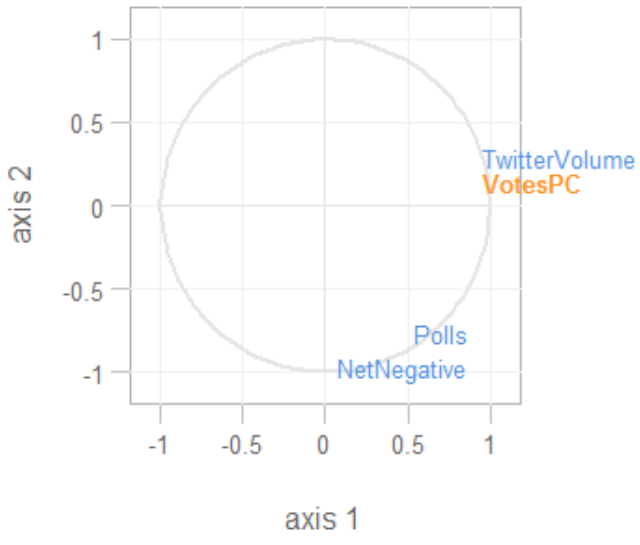
the period between 90 and 61 days before the election, when the leftist candidate José María Villalta would appear to have better chances.

Table 2.16. OLS Estimates predicting Percentage of Votes in Costa Rica (2014)

	Model 1n	Model 2n	Model 3n	Model 4n	Model 5n
Intercept	0.170** (0.048)	0.054** (0.017)	0.188*** (0.022)	0.009 (0.018)	0.019 (0.023)
Polls	0.014 (0.277)	--	--	0.484*** (0.108)	0.420* (0.143)
Volume on Twitter	--	0.662*** (0.078)	--	0.584*** (0.071)	0.574*** (0.074)
Net Negative on Twitter	--	--	-0.290* (0.134)	-0.248** (0.083)	-0.240* (0.085)
Incumbent	0.138 (0.084)	0.069* (0.024)	0.194** (0.052)	--	0.022 (0.032)
Residual standard error	0.094 on 17 DF	0.041 on 17 DF	0.083 on 17 DF	0.033 on 16 DF	0.034 on 15 DF
Multiple R-squared	0.299	0.866	0.450	0.916	0.919

N=20. Cell entries are coefficients with std. errors in parentheses. *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Graph 2.8. Circle of Correlation – PLS predicting Votes in Costa Rica (2014)



Note: Model uses 3 components. R-Squared: t1= 0.884; t2= 0.016; t3= 0.016.

Dominican Republic

Polls gave accurate predictions during all the four months before elections. Twitter data only forecasts the right results in two moments – between 120 and 91 days before the election and from 30 days to Election Day.

Adding confusion to the political discussions, there was diffusion of fake polls among the voters. Trying to give legitimacy to their numbers, these polls were attributed to CNN em Español, who assured that the news outlet did not sponsor any surveys concerning the election in Ecuador.

Number of observations (only two candidates) is not enough to calculate properly OLS or PLS regressions.

Table 2.17.OLS Estimates predicting % of Votes in Dominican Republic (2012)

	Model 1o	Model 2o	Model 3o	Model 4o	Model 5o
Intercept	0.478*** (0.000)	0.478*** (0.000)	0.478*** (0.000)	0.109 (0.105)	0.478*** (0.000)
Polls	0.000 (0.000)	--	--	0.936* (0.257)	0.000 (0.000)
Volume on Twitter	--	0.000 (0.000)	--	-0.154# (0.061)	0.000 (0.000)
Net Negative on Twitter	--	--	0.000 (0.000)	-0.001 (0.045)	0.000 (0.000)
Incumbent	0.043*** (0.000)	0.043*** (0.000)	0.043*** (0.000)	--	0.043*** (0.000)
Residual standard error	0.000 on 5 DF	0.000 on 5 DF	0.000 on 5 DF	0.009 on 4 DF	0.000 on 3 DF
Multiple R-squared	1	1	1	0.907	1

N=8. Cell entries are coefficients with standard errors in parentheses. #p≤ 0.07 *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Ecuador

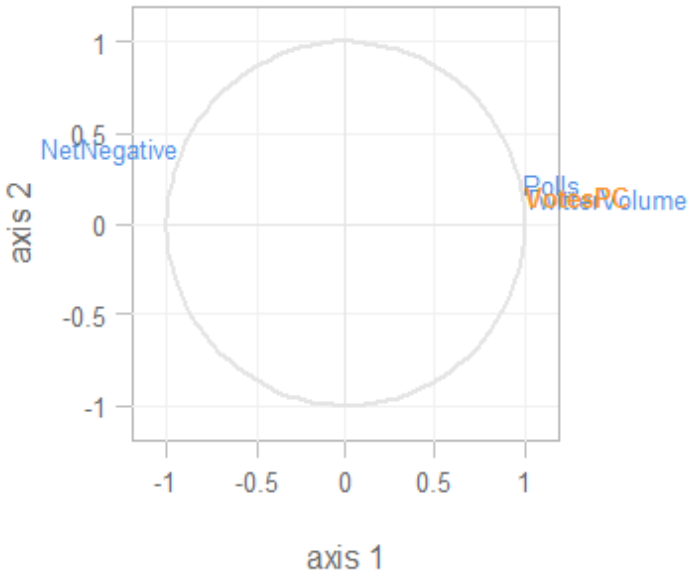
Both polls and Twitter Volume have accurate predictions, showing president Rafael Correa being re-elected in the first round. However, Twitter data has lower error in the comparison with the election results. Once again, most polling firms had bias favoring the incumbent candidate.

Table 2.18. OLS Estimates predicting Percentage of Votes in Ecuador (2013)

	Model 1p	Model 2p	Model 3p	Model 4p	Model 5p
Intercept	0.052 (0.041)	0.037 (0.029)	0.218*** (0.020)	0.267 (0.035)	0.086 (0.069)
Polls	0.780** (0.237)	--	--	0.312 (0.170)	0.118 (0.276)
Volume on Twitter	--	0.786*** (0.145)	--	0.609* (0.238)	0.493 (0.264)
Net Negative on Twitter	--	--	-0.707** (0.156)	-0.071 (0.190)	-0.254 (0.264)
Incumbent	0.060 (0.136)	0.102 (0.076)	0.367*** (0.040)	--	0.137 (0.137)
Residual standard error	0.059 on 9 DF	0.042 on 9 DF	0.048 on 9 DF	0.043 on 8 DF	0.042 on 7 DF
Multiple R-squared	0.957	0.978	0.971	0.980	0.982

N=12. Cell entries are coefficients with standard errors in parentheses. #p≤ 0.10 *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Graph 2.9. Circle of Correlation – PLS predicting Votes in Ecuador (2013)



Note: Model uses 3 components. R-Squared: t1= 0.958; t2= 0.020; t3= 0.001.

El Salvador

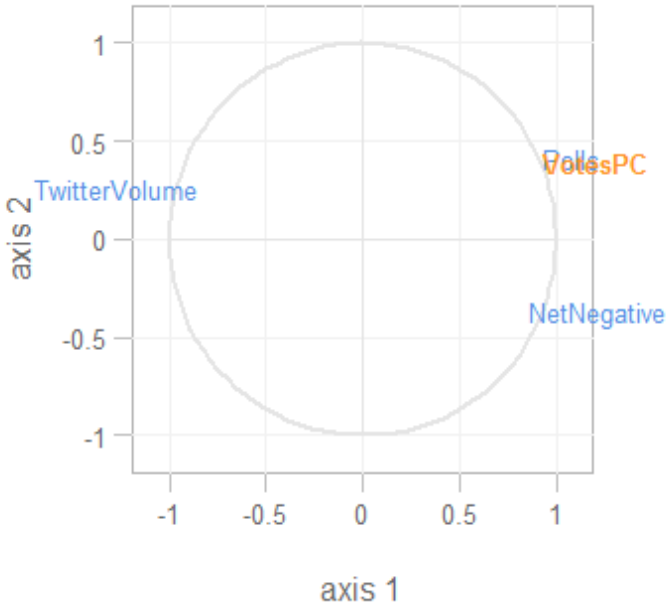
Polls had advantage over Twitter data, which performed poorly.

Table 2.19. OLS Estimates predicting % of Votes in El Salvador (2014)

	Model 1q	Model 2q	Model 3q	Model 4q	Model 5q
Intercept	-0.049# (0.025)	0.754** (0.185)	0.209*** (0.019)	0.097 (0.080)	0.121# (0.063)
Polls	1.103*** (0.081)	--	--	1.172*** (0.086)	0.879*** (0.134)
Volume on Twitter	--	-1.448* (0.525)	--	-0.443* (0.193)	-0.334# (0.156)
Net Negative on Twitter	--	--	0.667*** (0.123)	-0.104 (0.072)	0.090 (0.095)
Incumbent	0.045# (0.023)	0.186* (0.062)	0.249*** (0.041)	--	0.073* (0.029)
Residual standard error	0.028 on 9 DF	0.096 on 9 DF	0.067 on 9 DF	0.027 on 8 DF	0.021 on 7 DF
Multiple R-squared	0.977	0.728	0.884	0.980	0.990

N=12. Cell entries coefficients with SE in parentheses. #p≤ 0.09 *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Graph 2.10. Circle of Correlation – PLS predicting Votes in El Salvador (2014)



Note: Model uses 3 components. R-Squared: t1= 0.830; t2= 0.150; t3= 0.000.

Guatemala

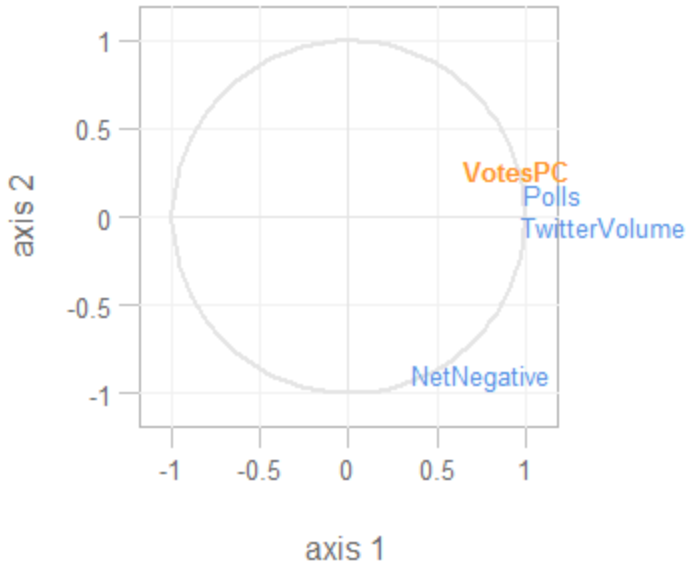
Both polls and Twitter data failed to predict election results, in a competition dominated by scandals, protests and a large number of candidates, which resulted in the election of television comedian Jimmy Morales. What was mainly skewing the data were the numbers for incumbent candidate Manuel Baldizon, pointed as the front-runner with great distance from other candidates, in the polls as in Twitter Volume.

Table 2.20. OLS Estimates predicting Percentage of Votes in Guatemala (2015)

	Model 1r	Model 2r	Model 3r	Model 4r	Model 5r
Intercept	0.099*** (0.022)	0.112*** (0.023)	0.155*** (0.017)	0.095*** (0.020)	0.106*** (0.024)
Polls	0.350*** (0.084)	--	--	0.586** (0.167)	0.566** (0.169)
Volume on Twitter	--	0.286* (0.103)	--	-0.250 (0.187)	-0.286 (0.192)
Net Negative on Twitter	--	--	0.173 (0.108)	-0.055 (0.076)	0.012 (0.107)
Incumbent	-0.055 (0.053)	-0.070 (0.043)	-0.166* (0.060)	--	-0.066 (0.073)
Residual standard error	0.069 on 21 DF	0.077 on 25 DF	0.084 on 25 DF	0.068 on 20 DF	0.068 on 19 DF
Multiple R-squared	0.511	0.357	0.236	0.545	0.563

N=28. N of observations for models 1, 4 and 5= 24. Cell entries are coefficients with standard errors in parentheses. #p≤ 0.10 *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Graph 2.11. Circle of Correlation – PLS predicting Votes in Guatemala (2015)



Note: Model uses 3 components. R-Squared: t1= 0.396; t2= 0.067; t3= 0.082.

Honduras

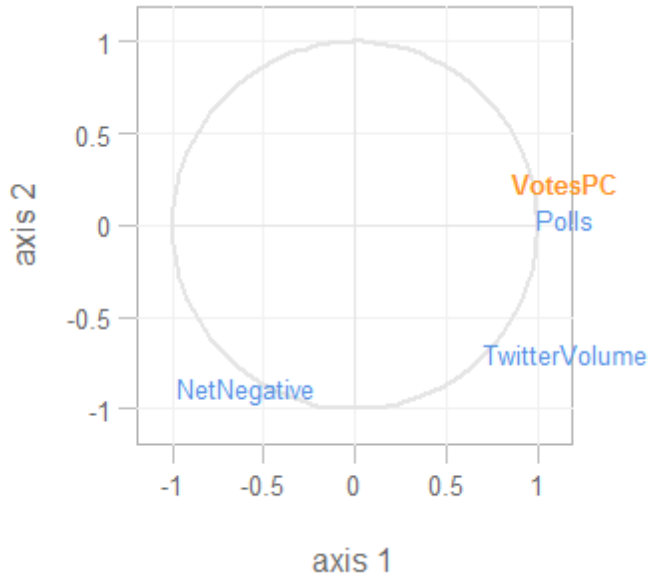
In another difficult election for forecasters, polls were led most of the time by challenger Xiomara Castro, who would lose the competition against Juan Orlando Hernández, from the incumbent National Party.

Table 2.21. OLS Estimates predicting Percentage of Votes in Honduras (2013)

	Model 1s	Model 2s	Model 3s	Model 4s	Model 5s
Intercept	0.079** (0.019)	0.149*** (0.031)	0.183*** (0.029)	0.071 (0.078)	0.079** (0.022)
Polls	0.585*** (0.077)	--	--	0.867** (0.214)	0.618*** (0.064)
Volume on Twitter	--	0.242* (0.111)	--	-0.208 (0.343)	-0.119 (0.095)
Net Negative on Twitter	--	--	-0116 (0.102)	-0.060 (0.129)	-0.091* (0.036)
Incumbent	0.100*** (0.018)	0.160*** (0.030)	0.159*** (0.034)	--	0.100*** (0.010)
Residual standard error	0.023 on 9 DF	0.052 on 13 DF	0.058 on 13 DF	0.048 on 8 DF	0.013 on 7 DF
Multiple R-squared	0.949	0.723	0.655	0.801	0.987

N=16. As electoral regulation in Honduras forbids polls during the 30 days before the election, N of observations for models 1, 4 and 5= 12. Cell entries are coefficients with standard errors in parentheses. #p≤ 0.10 *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Graph 2.12. Circle of Correlation – PLS predicting Votes in Honduras (2013)



Note: Model uses 3 components. R-Squared: t1= 0.715; t2= 0.047; t3= 0.039.

Mexico

Most of the polls consistently predicted that PRI candidate, Enrique Peña Nieto, would win the election, over-estimating his numbers. However, there was some dispute over who was going to finish second. Between 120 and 61 days before the election, polls were putting incumbent candidate Josefina Vázquez Mota right behind Enrique Peña Nieto. During the two months before the election, most predictions would rightly forecast that former Federal District governor Andrés Manuel López Obrador was going to finish the race ahead of Vázquez.

Twitter Volume data also shows Enrique Peña Nieto as the front-runner all the time, giving a larger error in favor of the PRI candidate than polls were predicting. Vázquez gets in second place all the time, but Twitter does capture López Obrador momentum, increasing his

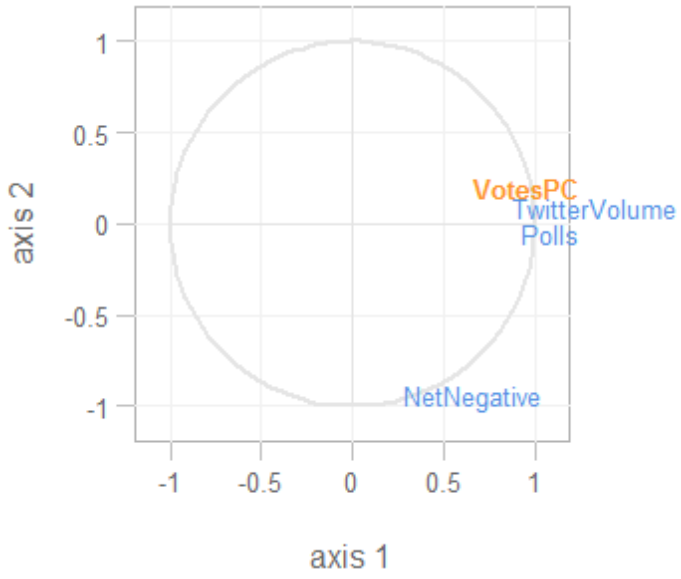
margins in the last month before the election.

Table 2.22. OLS Estimates predicting Percentage of Votes in Mexico (2012)

	Model 1t	Model 2t	Model 3t	Model 4t	Model 5t
Intercept	0.278*** (0.051)	0.314*** (0.007)	0.368*** (0.012)	0.153 (0.083)	0.317*** (0.019)
Polls	0.268 (0.151)	--	--	0.520 (0.319)	-0.007 (0.070)
Volume on Twitter	--	0.157*** (0.017)	--	0.069 (0.103)	0.160*** (0.020)
Net Negative on Twitter	--	--	-0.071 (0.188)	-0.247 (0.315)	-0.107 (0.060)
Incumbent	-0.085** (0.019)	-0.098*** (0.006)	-0.100*** (0.020)	--	-0.099*** (0.007)
Residual standard error	0.028 on 9 DF	0.010 on 9 DF	0.033 on 9 DF	0.050 on 8 DF	0.009 on 7 DF
Multiple R-squared	0.803	0.973	0.737	0.455	0.983

N=12. Cell entries are coefficients with std. errors in parentheses. *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Graph 2.13. Circle of Correlation – PLS predicting Votes in Mexico (2012)



Note: Model uses 3 components. R-Squared: t1= 0.408; t2= 0.037; t3= 0.009.

Panama

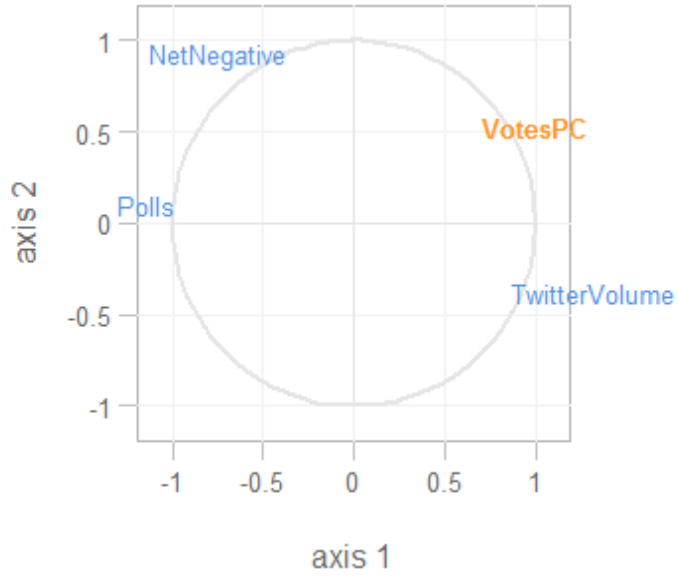
Another case of poll failure, Panama elected Juan Carlos Varela, from the Panamenista party. From 31 preelectoral polls published in the four months before the election, 28 would predict a victory of incumbent party candidate José Domingo Arias, who finished the race on second. Varela would appear on the polls on second or third place, behind PRD candidate, Juan Carlos Navarro. Varela was the front-runner on Twitter Volume between 120 and 61 days before the election.

Table 2.23. OLS Estimates predicting Percentage of Votes in Panama (2014)

	Model 1u	Model 2u	Model 3u	Model 4u	Model 5u
Intercept	0.722*** (0.086)	0.204 (0.136)	0.397*** (0.027)	0.627** (0.128)	0.625** (0.129)
Polls	-1.261** (0.283)	--	--	-0.826* (0.249)	-1.021* (0.318)
Volume on Twitter	--	0.353 (0.349)	--	0.008 (0.169)	0.127 (0.208)
Net Negative on Twitter	--	--	0.326* (0.133)	0.220* (0.074)	0.142 (0.109)
Incumbent	0.094* (0.032)	0.034 (0.064)	-0.097* (0.039)	--	0.060 (0.061)
Residual standard error	0.029 on 9 DF	0.050 on 9 DF	0.041 on 9 DF	0.028 on 8 DF	0.029 on 7 DF
Multiple R-squared	0.705	0.150	0.433	0.751	0.781

N=12. Cell entries are coefficients with standard errors in parentheses. #p≤ 0.10 *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Graph 2.14. Circle of Correlation – PLS predicting Votes in Panama (2014)



Note: Model uses 3 components. R-Squared: t1= 0.473; t2= 0.265; t3= 0.012.

Paraguay

While most polling companies (Enrique Chase/ICA, First Analisis, Grau Y Asociados) would rightly estimate that the Colorado Party candidate, Horacio Cartes, was ahead in the polls, Ati Snead would give the advantage for incumbent Efrain Alegre during all the four months before the election. The head of polling firm Enrique Taka Chase accused Ati Snead of data manipulation, which would compromise the credibility of polling firms and give rumors of electoral fraud. (Nova Paraguay, 2013a). There were also accusations about the diffusion of fake polls during the electoral campaign in Paraguay (Nova Paraguay, 2013b; Paraguay.com, 2013).

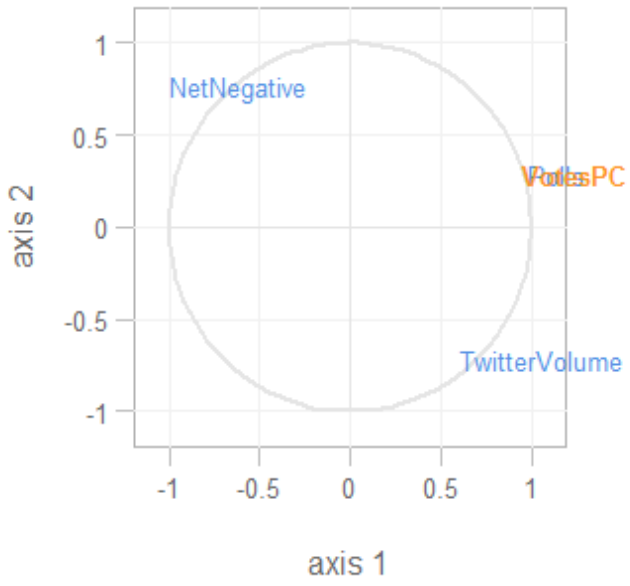
Twitter data would give accurate predictions during the three months before the election, but with higher error if compared to poll data.

Table 2.24. OLS Estimates predicting Percentage of Votes in Paraguay (2013)

	Model 1v	Model 2v	Model 3v	Model 4v	Model 5v
Intercept	-0.075* (0.033)	-0.146 (0.199)	0.159 (0.164)	-0.072 (0.051)	-0.115 (0.067)
Polls	1.205*** (0.093)	--	--	1.223*** (0.104)	1.158*** (0.127)
Volume on Twitter	--	1.159* (0.504)	--	-0.027 (0.157)	0.084 (0.196)
Net Negative on Twitter	--	--	-0.445 (0.500)	-0.022 (0.122)	-0.073 (0.134)
Incumbent	0.022 (0.030)	0.280* (0.121)	0.200 (0.147)	--	0.049 (0.050)
Residual standard error	0.048 on 9 DF	0.168 on 9 DF	0.202 on 9 DF	0.052 on 8 DF	0.052 on 7 DF
Multiple R-squared	0.954	0.433	0.173	0.952	0.957

N=12. Cell entries are coefficients with standard errors in parentheses. *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Graph 2.15. Circle of Correlation – PLS predicting Votes in Paraguay (2013)



Note: Model uses 3 components. R-Squared: t1= 0.868; t2= 0.074; t3= 0.009.

Uruguay

All polls correctly predicted that incumbent candidate, leftist Tabare Vasquez, and right-wing Lacalle Pou would compete on the second round. However, most of the polls were under-estimating Vasquez, while over-estimating Lacalle Pou.

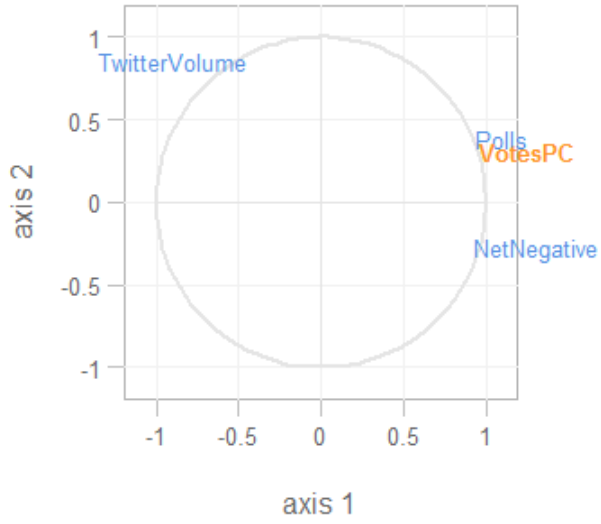
In the three months before election, Twitter Volume data would also indicate that Vasquez and Lacalle Pou were running against each other on the second round, but the latter would be taken as the front-runner. Between 120 and 91 days, Volume data incorrectly put in first position the Colorado Party candidate Pedro Bordaberry, who actually finished in third.

Table 2.25. OLS Estimates predicting Percentage of Votes in Uruguay (2014)

	Model 1w	Model 2w	Model 3w	Model 4w	Model 5w
Intercept	-0.023* (0.008)	0.020 (0.106)	0.222# (0.116)	0.003 (0.021)	-0.019 (0.016)
Polls	1.014*** (0.031)	--	--	1.129*** (0.042)	1.033*** (0.042)
Volume on Twitter	--	0.593# (0.278)	--	-0.106# (0.052)	-0.033 (0.042)
Net Negative on Twitter	--	--	-0.050 (0.324)	0.044 (0.041)	-0.008 (0.032)
Incumbent	0.056*** (0.009)	0.345*** (0.055)	0.298* (0.109)	--	0.050* (0.016)
Residual standard error	0.008 on 9 DF	0.076 on 9 DF	0.093 on 9 DF	0.013 on 8 DF	0.009 on 7 DF
M. R-squared	0.998	0.824	0.735	0.995	0.998

N=12. Cell entries are coefficients with standard errors in parentheses. #p≤ 0.08 *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Graph 2.16. Circle of Correlation – PLS predicting Votes in Uruguay (2014)



Note: Model uses 3 components. R-Squared: t1= 0.883; t2= 0.087; t3= 0.025.

Venezuela

In Venezuela, there were no surveys at 90 days before the election, while the country was still dealing with the disease and death of president Hugo Chávez. The first survey, by Hinterlaces, would be at February 9th, giving 56% to Maduro against only 20% to Capriles. On the next week, Datanálisis (2/14/13) would present a more balanced dispute, with 46,4% to Maduro and 34,3% to Capriles. On the week before the election, surveys would disagree on the results. DatinCorp and Datanálisis would give the victory to Maduro, with numbers between 44% and 54,8%, against Capriles (43% to 45%). Datamática would release three different surveys showing that Capriles would be the president, with 39,7 to 42,7% of the votes, while Maduro would have 30,4% to 34.9%. Twitter Volume fails to predict Maduro advantage over Capriles, who shows up as the front-runner all the 120 days before election. There were not enough observations to estimate pooled OLS or PLS for Venezuela.

Table 2.26. Forecasting models with Polls and Twitter data in Latin America, by country				
Country/Year	Are polls consistent?	When do polls give accurate prediction?	When does Volume on Twitter give accurate prediction?	What is the best estimator?
Argentina 2015	No	All the time	All the time	Polls
Bolivia 2014	Yes	All the time	All the time	Polls
Brazil 2014	No	120-91 days; 90-61 days;	120-91 days; 90-61 days; 60-31 days	Inconclusive
Chile 2013	No	90-61 days; 60-31 days; 30-Election day	Never	Polls
Colombia 2014	No	30-Election day	All the time	Twitter Volume
Costa Rica 2014	No	Never	120-91 days; 60-31 days: 30-Election Day	Twitter Volume
Dominican Republic 2012	No	All the time	120-91 days; 30-Election Day	Polls
Ecuador 2013	Yes	All the time	All the time	Twitter Volume
El Salvador 2014	No	120-91 days; 90-61 days; 30-Election day	Never	Polls
Guatemala 2015	No	Never	Never	Polls
Honduras 2013	No	60-31 days	Never	Polls
Mexico 2012	Yes	All the time	All the time	Twitter Volume
Panama 2014	No	Never	120-91 days; 90-61 days	Inconclusive
Paraguay 2013	No	120-90 days; 60-31 days; 30-Election day	90-61 days; 60-31 days; 30-Election day	Polls
Uruguay 2014	Yes	All the time	90-61 days; 60-31 days; 30-Election day	Polls
Venezuela 2013	No	60-31 days; 30-Election day	Never	Polls

Polls are consistent when surveys from different polling firms, publicized along the 120 days before the election, agree on who is going to win the election in the first or only round, or who is going to the second round. Accurate prediction means that the estimator can point out who are going to win or going to runoff election, not taking error or precision into account (on polls prediction is calculated by the moving average).

2.5.1. Bias on Explanatory Variables

The OLS and PLS models point to interesting results. Twitter Volume is a better predictor in Colombia, Costa Rica, Ecuador and Mexico. It gives satisfying results in Argentina, almost as strong as polls. Twitter Volume can be used as a predictor in Guatemala, Honduras and Paraguay, in forecasting models controlled by incumbency, though their coefficients are weaker than polls. In Uruguay, it`s almost significant (t-test = 0.06).

Twitter Volume fails the t-test in OLS models in Bolivia and Panama. Though statistically significant, the coefficient is in the wrong direction in Chile and El Salvador – less Twitter Volume predicting more votes.

Yet polls are the best predictor in Argentina, Bolivia, Chile, El Salvador, Guatemala, Honduras, Paraguay and Uruguay. Numbers in Ecuador are almost as good as those for Twitter Volume, which is the best estimate in this case. Polls fail the significance test in Colombia, Costa Rica and Mexico, and also have results in the wrong direction in Panama.

With only two candidates each, Dominican Republic and Venezuela don`t have enough data points to make a proper comparison, though the numbers in Venezuela are bad for forecasting models with Twitter Volume. Results in Brazil are inconclusive.

Net Negative models are mostly in the right direction, meaning that less negativity increases the likelihood of getting more votes. However, they fail the significance test in most cases when controlled by incumbency.

As a conclusion, in three countries – Colombia, Costa Rica and Mexico – Twitter Volume models are effective exactly when polls fail, making that social media data can be

used as an alternative to polls. But why there is this cross-national difference in the predictive power and is there any way of saying when to use Twitter Volume instead of polls?

This question could only be answered properly with a longitudinal study over successive elections, which is not possible now due to the initial stage of social media use in political campaigns. In addition to this, it is very hard to answer this question because one needs to know not only when Twitter Volume tends to perform better, but also when polls will fail – an issue that remains unsettled after almost eight decades of scientific polling.

I can only point out what were the biases during the 2012-2015 electoral cycle in Latin America, both for polls and Twitter data, without much confidence that these findings can be extended to other countries or other electoral cycles in Latin America. For that, I verify variation on residuals in simple regression models predicting percentage of votes, according to systemic conditions and context of the competition.

The residual for observation *i* is defined as follows:

$\hat{u}_i = y_i - \hat{y}_i$

I use OLS models with residuals and squared residuals as dependent variables. While residuals can detect bias to verify if an observation is underpredicted ($\hat{u}_i > 0$) or overpredicted ($\hat{u}_i < 0$), squared residuals will show bias without indicating its direction ($\hat{u}_i^2$ is always greater than 0). Independent variables are incumbency, party ideology, party systems, Two-Round System, days before the election (120, 90,60 or 30), GNI per capita growth and population size. Findings are in table 2.27.

Table 2.27. OLS Estimates predicting Residuals and Squared Residuals in forecasting models with Polls and Twitter Volume

	Model 1x – Residuals on %Votes ~ Polls	Model 2x – Residuals on %Votes ~ Twitter Volume	Model 3x – Squared Residuals on %Votes ~ Polls	Model 4x – Squared Residuals on %Votes ~ Twitter Volume
Intercept	0.137 (0.087)	0.098 (0.118)	0.0015 (0.0136)	0.0497* (0.0226)
Incumbent	-0.007 (0.012)	0.102*** (0.016)	-0.0017 (0.0018)	0.0050# (0.0003)
Party Ideology	-0.001 (0.001)	-0.0031* (0.0015)	-0.0001 (0.0002)	-0.0003 (0.0003)
Party System	-0.017*** (0.004)	-0.021*** (0.006)	0.0022** (0.0007)	-0.0029* (0.0011)
Two-Round System	-0.014 (0.013)	-0.003 (0.017)	-0.0000 (0.0021)	0.0052 (0.0033)
Days Before Election	-0.000 (0.000)	-0.000 (0.000)	0.00005* (0.00002)	0.0001 (0.0000)
GNI per capita growth	-0.001 (0.002)	-0.000 (0.003)	0.0001 (0.0003)	0.0011* (0.0005)
Logged. population	-0.002 (0.005)	-0.000 (0.007)	-0.0004 (0.0008)	-0.0021 (0.0013)
Residual standard error	0.074 on 196 DF	0.104 on 212 DF	0.012 on 196 DF	0.020 on 212 DF
Multiple R-Squared	0.102	0.271	0.082	0.109

Note: Models were based on pooled OLS estimation, combining the different cross sections of data collected in a single sampled election – 120 to 91 days before Election Day; 90 to 61 days before; 60 to 31 days before; 30 days before. N of candidates=55 on 16 Latin American countries, between 2012 and 2015. Cell entries are coefficients with standard errors in parentheses. #p ≤ 0.10 *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005 # p ≤ 0.07

One of the first conclusions is that residuals on Twitter Volume and poll models are equally affected by the party system. This means that elections with a larger number of parties will result in greater bias in the predictions, no matter if the researcher uses Twitter data or poll data.

What makes poll models less accurate is bias on the interviews according to the number of days before the election – the more distance to Election Day, the less accurate are

the predictions with survey data. This variable does not affect models with Twitter Volume.

Different than bias in polls, bias in models with Twitter Volume is caused by three factors: incumbency, party ideology and economic performance (GNI per capita growth). Twitter tends to underpredict incumbents, and therefore overpredict challengers. There is also a tendency to overpredict left-wing candidates.

These trends could be explained by the excessive influence of Latin American governments over the political system and the media, with evidence of strong political parallelism and low pluralism in news organizations. In situations like this, opposition parties might compensate these forces by increasing their activities and presence in digital media. The effect of party ideology on bias can also increase in an environmental of high political polarization in electoral campaigns.

2.6. Conclusion

The comparative analysis of presidential election campaigns in Latin America demonstrates that poll data has, in most cases, a higher predictive factor than Twitter data, which still has proved to be significant. There were cases in which Volume on Twitter was a better estimator for candidate performance in the ballots than the polls: Colombia, Costa Rica, Ecuador and Mexico.

In my analysis, researchers have greater incentives for using social media data on the following scenarios:

1 – when polls are not consistent over time and/or among different polling firms. In this case,

a researcher can appeal to social media data in the same way a patient visits another doctor hoping to get a second opinion about his medical treatment;

2 – when the competition is categorized by low levels of information;

3 – when data collection is intended in days more distant to Election Day, or otherwise preferred in days that are restricted for polls according to electoral regulation;

4 – when their inquiry has particular interest on minoritarian candidates, who don`t have much of the voter`s attention.

5 – when researchers are investigating electoral fraud or manipulation.

On the other hand, researchers should avoid using social media data in forecasting models on the following situations:

1 – when there are signs that the president or the government exerts an excessive influence over the political system and the media;

2 – when there is excessive party polarization.

As I debated earlier, there are many challenges to using social media data, and the scholarship is only starting to thrive. As Murphy et al. (2014) observe, social media may provide useful insights for a particular set of questions, but perhaps not more specific point estimates that are generalizable to a broader population.

Following the transformations on the public sphere, as observed by Habermas (1991), one should not expect to use Twitter data as a measure for public opinion, or take online discussions as an environment for deliberation. While private spheres infiltrate the public, with increasing polarization, fragmentation and culture-consumption, there is not much reasoning, learning or open exchange of ideas. The same mechanisms of social pressure that

can bring bias to polls, as observed in the spiral of silence theory (Noelle-Neumann, 1974), can also be exercised in new media environment. As Murphy et al. (2014) put, the fact that social media is inherently public to some extent affects the likelihood that an individual will share the type of data in which we are interested. “Stigma and social desirability may prevent honest and open sharing on certain topics.”

The proper approach is to break down the analysis into the campaign spheres that are manipulated by candidates. Instead of trying to measure public opinion, verify mobilization of opinion leaders in their quest to form public opinion. It is clear that, as a proxy variable, mobilization could be used to estimate public opinion, together with other relevant variables, depending on the context. But more than finding relationships between social media and voters’ behavior, it is time to develop and improve methods to collect and analyze big data.

The abundance and increasing importance of social media data in people`s lives also gives an opportunity. Yet the state of preelectoral polls in Latin America can be taken as an incentive and call to arms. Polls in Latin American elections are mostly inconsistent in their predictions, with much disagreement among polling firms and through the brief election time. During the 2012-2015 cycle, there were cases of total poll failure, as in Costa Rica, Guatemala and Panama; and plain or minor embarrassment, like Brazil and Colombia. As I demonstrated earlier, polls can have bias favoring incumbent candidates, as in Argentina, Brazil, Colombia, Costa Rica, Ecuador, Guatemala and Venezuela. But there are also countries in which incumbents are underestimated – Honduras, Mexico and Uruguay.

Not less intriguing than the problems with polls in Latin America is the increasing horserace media coverage that sponsors campaign strategy, polling and game frames over

analysis of substantive policy issues. Polls can be invaluable for strategic voters, especially for coordination in electoral systems that require two-round majority runoff systems, as it is the design of most presidential elections in Latin America. But in an environment of low information campaigns, it is concerning that the overwhelming barrage of news about polls might produce undesirable effects, contaminating and skewing predictions.

Every comparison between poll data and social media data will be limited by the hidden polling effects, which induce movements in voter intentions and can lead to self-confirming predictions. Could Twitter data have a better forecasting property, if polling effects were isolated? After exercising a comparative analysis between poll and Twitter data in Latin American presidential campaigns, and assessing all the problems and opportunities that they both offer, I can only say that the best possibilities for future research are on integrating these two worlds that only seem to be in conflict, but could also converge into new practices and standards. That is what we should expect for the most innovative and successful electoral campaigns in the future.

3. How institutions affect participation in campaign spheres

3.1. Introduction

Political communication theorists expect that changes in the communication environment brought up by digital media will also reshape political participation, hopefully renewing and giving more vigor to the weakening civic engagement in Western democracies (Putnam, 1995; Rosenstone & Hansen, 1993). Elections – the main participation channel – deserve particular attention, with much excitement in the scholarship after the first election of Barack Obama, in 2008, on the back of a personalized communication campaign that showed the enthusiasm and some of the characteristics of a social movement (Bimber, 2014). Research has demonstrated that digital media use may even increase traditional forms of political participation (Bimber & Copeland, 2013; Bimber, Cunill & Copeland, 2014).

However, the scholarship has mainly focused their attention on digital participation at the individual level, commonly within a single country, not devoting much effort to understand how the effects at the macro level are. To what extent the possibilities of participation in the new media environment are limited or constrained by systemic variables?

So far there is not much theory nor empirical studies to evaluate how digital participation might be affected by institutions and other macro contextual variables that the literature has always considered important to traditional forms of political participation (Carreras & Castaneda-Angarita, 2014; Fornos, Power, & Garand, 2004; Pérez-Liñán, 2001; Roberts & Wibbels, 1999; Simon, 2016; Van der Meer et al., 2009).

A structural theory of participation is missing to explain political behavior in the changing media context (Bimber, 2017). I verify in this chapter the influences of institutions, ideology and social economic context over digital participation, here measured in two different ways: (1) how many people participate and (2) how many times they participate in campaign spheres. I find out that institutions and social context affect Latin American campaign spheres by the following independent variables: party system, electoral system, incumbency, party ideology, population size and GNI per capita growth.

As defined in Chapter 2, a campaign sphere is a perverted model of Habermas` public sphere. While the public sphere is normative, a campaign sphere is descriptive. Instead of forming public opinion through rational deliberation, a campaign sphere mostly reproduces a candidate`s political slogans and symbols to mobilize opinion leaders. While the public sphere is inclusive, a campaign sphere has clear boundaries dividing those who support the campaign and those who oppose it – though those boundaries may vary dynamically and across countries with different political and party systems.

That`s why a campaign sphere has less negative interactions than the public sphere. Most of negative manifestations are directed against opponents. When individuals criticize a candidate in his own campaign sphere, they are still using this candidate`s framings, terms

and symbols. Interactions with counterframings will be sparse, and not welcomed by the opinion leaders who participate in a campaign sphere.

A campaign sphere can be measured by the collection of social media data with the slogans and symbols used by the candidate during the electoral time. I chose to use Twitter data, with a total of 16.6 million posts collected about 57 candidates on 16 countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Panama, Paraguay, Uruguay and Venezuela. Data comprises the period between 120 days before the election and 30 days after the election, from 2012 to 2015.

Participation is measured under a structural approach with social network analysis of the relations among Twitter handles in a campaign sphere (Carrington et al., 2005; De Nooy et al., 2011; Freeman, 2004; Wasserman & Faust, 1994). Social network analysis theory, backed by empirical research, assumes that large information networks, such as those on Twitter and other social media platforms, have low density and fewer ties between people, leading to less cohesive structures.

Before verifying how participation in campaign spheres is affected by institutions, party ideology and social context, in the next section I review the literature on political participation, institutions, parties and social economic conditions on electoral campaigns, trying to understand how these variables can be affected by the new context of digital communication in Latin America and other countries.

3.2. Literature review

The basic argument for authors who believe in a stronger mobilization with the new media environment is that the changed context for communication enhances voter information about candidates and elections, and in turn stimulates increased participation (Tolbert & McNeal, 2003). For Gainous & Wagner (2011), the internet has changed the information environment so radically that previous institutions are becoming obsolete. "It is not altering the rules; it is changing the electoral game itself and creating a new paradigm", claim Gainous & Wagner. Carlisle & Patton (2013) note that, in the United States 2008 election, traditional predictors of participation, such as social economic status and social capital, are not valid for social media services like Facebook.

Others are more cautious with these claims, observing that the new media environment produces limited or mixed effects on participation and allows heterogeneous experiences. Schlozman, Verba & Brady (2010) warn that participation in the internet still holds long-standing patterns of inequality and stratification by socio-economic status, although they recognize the potential of new media to engage younger people, who historically have been less engaged than older people in most forms of political participation. The digital divide was unraveled in more depth and in larger scope by Norris (2001), pointing out differences not only between socioeconomic groups within a nation but also between industrialized and developing countries.

Bimber, Flanagin & Stohl (2005) very well noted how researchers have to readapt

traditional theories of collective action, as individuals have much greater autonomy and prospects to shape their organizational experience. But for them organizations still matter and have a wide variation in their relationships with members, while providing increased opportunities for engagement and expression in order to fill the changing expectations of networked citizens (Bimber, Flanagin & Stohl, 2012).

3.2.1. Parties

Political parties are central actors in democratic politics as a method of decision-making, policy performance and social-group alignment (Dalton, 2002); and a way to provide programmatic linkages between citizens and public officials (Kitschelt, 2000). In these sense, parties also bring solutions to the problem of collective action and collective choice, acting as brokers of resources to candidates and information to voters with limited political attention to choose between complex alternatives, and contributors to accountability, responsibility and competition for public offices (Aldrich, 2011).

However, the model of mass-based parties, as described by Duverger (1990), is in decline. Duverger conceptualized two distinct organizations of parties: (1) decentralized cadre parties, representing the upper and lower middle classes; (2) centralized mass parties, which represent the working class. As the author observes, this classification also distinguishes Right and Left[5]. The first group traditional social elites, with weak collective

[5] Even agreeing with Duverger on the importance of suffrage to the emergence of parties in Western Europe, La Palombara and Weiner (1966) point out that democratic ideologies might be the main causal explanation to the organization of political parties.

organization and the predominance of individual considerations, keeping the masses in a passive role in spite of universal suffrage. In the latter, an active public receives political education and learns how to intervene in the life of the state, with the autonomous financing of elections by its own members, instead of appealing to a few big private donors. If the mass party depends mostly on the number of affiliates to succeed, the cadre party relies on quality: a group of influential persons with prestige and connections to provide a backing for the candidate and secure votes; experts who know how to handle the electorate and how to organize a campaign; and finally the financiers.

Today, even Socialist and Labor parties, once strongly founded in grassroots movements, become more and more professionalized and capitalized, experiencing a deep decline in membership. But at the same time, parties in a broader perspective, including those categorized as cadre parties, turn out more centralized in a sense that their leaders have alienated the party activists.

According to Aldrich (2011), the changes on the party system can be mainly explained by the communication technology. As he observed, in the context of the formation of the Jacksonian mass-based party in the first half of the Nineteenth Century, a national political organization was required after the improvements in national infrastructure, especially its transportation and communication systems.

But the development of broadcast mass media, between the 1950s and the 1970s, impacted the party system in a way that created a centralized information regime that was extremely resource dependent (Bimber, 2003). Communicating directly with the masses, candidates and party leaders had the opportunity to bypass activists and increase their power

on vote, office and policy seeking. But at the same time, this change required the professionalization of the party and campaign organizations and increased the costs of campaigning and mobilization, making the parties in other ways dependent on the resources of interest groups.

Aldrich notes: “Today those with specialized knowledge relevant to communication, such as pollsters, media and advertising experts, and computerized fund-raising specialists, enjoy influence in party, campaign, and even government councils that greatly exceeds their mere technical expertise.” The tension in electoral representation between parties and organized interests resulted in the recurrent debate and implementation of financing reform (Cigler & Loomis, 2007).

Dalton and Wattenberg highlight that the rise of television broadcasting dramatically altered both individual citizens and the general role of political parties in contemporary democracies, changing how politicians present themselves to the public, as well as how the public receives political information. Instead of learning about an election at a campaign rally or from party canvassers, television and newspapers became the primary sources of campaign information. Parties thus lost a large part of their role as intermediaries in the information process between the public and elites. “Instead of emphasizing the policy content of a campaign, television coverage focuses on a visually appealing backdrop for a speech peppered with short memorable quotes. Television-based campaigning also accentuates the personality of the candidates and their video style over party ideology or programmatic goals.” (Dalton & Wattenberg, 2000).

While working on TV campaigns, Joe Trippi had the outrageous experience of

listening to a candidate record two advertisements: one in which he made a speech supporting abortion and another one in which he defended the opposite. The candidate was willing to decide which of the two speeches would go to TV only when he got the results of a survey in his district (Trippi, 2008).

But more than emptying the debate about public policies, mass media shifted the campaign focus away from the political parties toward the candidates. “A similar personalization of campaign coverage has been discussed in many European party systems, often described as the 'Americanization' of electoral politics” (Dalton and Wattenberg, 2000).

After the 1990s, new media brought the promise of change in the party system and the information regime of political organizations. One of the most important characteristics of the new media environment is information abundance, provided not only by the multiplication on the number of sources of information but also by a more diversified, pluralistic and specialized media system. This contributes toward a new form of political organization in which (1) collective action does not necessarily require substantial staff, money, or organization on the part of organizers; (2) organizational boundaries are often permeable and not sharply defined; (3) informal association and affiliation are important and sometimes replace formal membership; (4) collective action is often narrowly focused on subsets of members or affiliates, with the organization reconfiguring itself between issues in opportunistic responses to the flow of political events (Bimber, 2003).

So far, the literature has not agreed in a consensus on how elections and campaigns will be transformed by the changes in the media environment. By one side, scholars argue that collective actors and organizations may become more professionalized and centralized,

monitoring citizens through the development of information and targeting techniques. The result is that, if there is more diffusion of richer information about political actors and policy options, and more diversity of actors and opinion in the public sphere, there is also more opportunity for citizens to become politically expressive without being substantively engaged (Howard, 2005).

By the other side, authors consider that a "citizen-initiated" campaign may transform organizations in a more expressive and participative way, challenging the top-down professionally managed approach to campaigning that has dominated the post-war period (Gibson, 2013).

Another hypothesis is that "organizational hybridity" may intertwine social movements and parties through their media activities (Chadwick, 2017). By one hand, with the adoption of digital tools parties embrace a model of operation that relies on a decentralized structure and floating support base – associated with social movements. Also according to Chadwick, new organizational forms are emerging that exist only in hybrid form and that could not function in the ways that they do without the Internet and the complex spatial and interactions it facilitates.

3.2.2. Institutions

If there is no agreement on how the changed context for communication will affect the systems of parties and political organizations, the literature has also dedicated little effort to how these changes will interact with political institutions. It is worth-noting that political

institutions affect the behavior of party leaders, offering a structure of political opportunities: (1) directly, through incentives in different institutional settings, in which votes are converted into policies or offices; and (2) indirectly, by different types of party organization, like public financing of political parties (Strom & Muller, 1999).

Among the most significant are the subsidies to support electoral campaigns giving free or easy access to media coverage. If public financing is defended as a way to overcome the problems of the relationship between parties and interest groups, it is also criticized as a cartel model, in which the party is focused on the state and getting a public office, and finally does not care about getting connected with the voters. “When parties make fewer and fewer efforts to mobilize citizens they worsen inequality of participation. Parties that centralize and professionalize their offices in lieu of citizens active as party members might contribute to the demobilization of the public and the diminished understanding and trust in the democratic process. Parties that develop public funding sources in order to insulate themselves from the ebbs and flows of public support will inevitably distance themselves from those they represent. Running elections and governing by marketing principles may be successful in the short term for parties, but this strategy may well undermine the democratic process in the long term.” (Dalton & Warrenberg, 2000)

As Gibson points out, systemic constraints are a possible explanation of why British parties are reluctant to embrace a more grassroots-oriented model of campaigning. “First, British parties are seen as more 'responsible' than their US counterparts, operating through an established hierarchy and formal membership. Adoption of the loose or informal 'supporter' network structure that lies at the heart of active citizen-initiated campaigning would thus

chafe against embedded organizational routines and norms – mainly campaign finance regulation and party organization. Second, the more restrictive limits on campaign spending significantly lower the incentives for the resource generation activities that make up an important element of citizen-initiated campaigning." (Gibson, 2013)

In one of the few comparative studies on new media and elections, Vaccari (2013) argues that digital politics develops in distinct ways in different countries, while parties' and candidates' use of the internet is shaped by institutional constraints and opportunities as well as organizational and ideological characteristics. At the same, he observes, citizens' online engagement is affected by social and economic stratification as well as political preferences and offline involvement.

In Vaccari's theory: (1) parties and citizens resources affect the ways in which they employ digital media, thus, the types of demands and agendas that are voiced and mobilized online; (2) political actors' use of the web is related to the ways in which they involve their supporters on the ground, as well as the extent to which citizens' offline engagement augments, and interacts with, their online participation; (3) winners and losers of digital politics vary in terms of the partisan and ideological alignments of the political organizations and types of citizens that turn out to be most active online.

Unfortunately, Vaccari's analysis doesn't consider the variations among the political culture of the United States and the other Western developed democracies studied in the research – United Kingdom, Australia, Italy, France, Germany, Spain. One could even ask to what extent is possible to compare elections in presidential and parliamentarian systems, with very different incentives and strategies for parties, candidates and voters.

Finally, much of his analysis is dedicated to political websites of parties and candidates, not accounting for their strategies and organization, especially with the use of social media – already at play during the time of the research. These processes could be better verified with social network analysis.

But Vaccari's effort should be recognized, as the majority of research on new media and its political effects relies on single-case studies. And more than that, the scholarship is mostly devoted to works on advanced Western Democracies, particularly the United States. This research intends to fill the gap on the literature, offering a cross-national study on presidential campaigns on Twitter in Latin American countries.

The research on Twitter and election campaigns started to gain more attention and prominence after the election of President Barack Obama, in the 2008 US campaign, when the context for communication changed the tools for fund-raising and personalized mobilization (Bimber, 2014).

Twitter is a website where people can share short messages, called tweets, via a web interface, SMS texting or mobile apps. People can subscribe to other users by following them individually or by following a Twitter list, which is curated by a user and contain a group of different authors. These messages can also be retweeted, which means the tweet is shared with another person's followers.

Twitter users are 18% of internet users and 14% of the overall adult population (Pew Research Internet Project, 2014). Their demographic profile is not reflective of the full population, and the network has more shares of young adults (31% of the internet users between 18 and 19 years old) and blacks (29%). Despite of this fact, part of the scholarship is

dedicated to verify if Twitter data can be used to assess trends in public opinion and even election results (Smith, 2010).

3.2.3. Context

Any research on campaign effects should also consider context factors, as social and economic conditions, which are expected to mediate other variables. Forecasting models based on measurable economic and political variables to predict the result of presidential elections in the United States have been broadly adopted and innovated by political scientists in the last years (Rosenstone, 1983; Campbell, 2012). Their accuracy and efficacy – in particular to forecast the popular vote – are a matter of great discussion and interest in the field, especially when these models are compared with public opinion surveys conducted during the campaigns, which are always fluctuating and sometimes indicating trends that contradict the predictions (Gelman & Gary, 1993).

But can these models be applied to presidential elections in other countries, namely those of Latin America? And how can they affect, or are affected, by the campaigns? These models do not assume that campaign effects on voting decisions do not matter. On the contrary, they imply that some variables might directly shape campaign effects. The enterprise is particularly challenging, considering:

(1) The short history of (re)democratization in Latin America, which began in the 1980s for most of the countries analyzed in the sample. With a lower number of presidential elections to observe, it is harder to build a forecasting model. Also, some countries have

democratic systems that, despite the fact of realizing frequent, competitive and fair elections, are not fully consolidated and/or are considered partially free in the Freedom House Scores[6]. During the period analyzed by this paper, that was the case of Mexico, Ecuador, Paraguay and Bolivia, which had a score of 3; Colombia (3.5); Honduras (4); and Venezuela (5).

(2) A troubled economic experience. Latin American countries have lived through several periods of economic crisis and reform in the last decades, with stagnation, high inflation and adoption of stabilization policies that preserved (if not aggravated) the high level of inequality in the region. As a result, the use of some economic measurements in the forecasting models might have a different weight or significance.

(3) Differently from the United States, most of the countries have a multi-party system, often unstable, with the sometimes fast rise and decline of loose coalitions, resulting in a fragile party identification and making it harder to predict the outcomes on presidential elections. There is also cases of countries who changed their system over time, even with a major transition from two-party to multi-party, as in Colombia. Within the sample, only two countries – Dominican Republic and Venezuela – organized elections with two strong candidates sharing the votes.

(4) Different institutions. As the forecasting models intend to predict the popular vote, and Latin American countries don't have Electoral Colleges, one could consider easier to adapt the models to the institution environment of the sample. But there is also an institutional variability that increases the uncertainty of the models. One of those institutions is the two-round system (hold in Chile, Costa Rica, El Salvador, Colombia, Brazil and

[6] The Freedom in the World reports, organized by Freedom House, give each country a score based on two numerical ratings—from 1 to 7—for political rights and civil liberties, with 1 representing the most free and 7 the least free. Countries with 3 to 5 scores are categorized as partially free.

Uruguay), which can make the electorate vote strategically and with different motivations in each electoral period.

3.3. Theory and Hypotheses

The scholarship on parties, institutions, and context establishes the basis for developing some specific hypotheses about how candidates are likely to adopt opportunities created by digital participation, both in terms of how many participate and how much they participate. Following I state what`s to be expected,.

3.3.1. Party System

Scholarship shows that aggregative majority party systems are associated with low citizen voting participation, if compared to representational party systems (Powell, 1981). This is to say that systems with fewer parties have lower participation.

As party systems affect traditional participation, I also expect that the number of parties will affect digital participation. The extent to which citizens use social media to engage with campaigns will be shaped by how many parties are in the country. Therefore, my hypothesis is:

Hypothesis 1: Countries with fewer parties will have lower participation, with less citizens using social media to engage with campaigns (by talking, tweeting, sharing, using hashtags

and other dimensions of political communication through digital media).

3.3.2. Electoral System

Most presidential elections in Latin America adopt second-ballot or two-round majority runoff systems. There are five exceptions in the sample: Honduras, Mexico, Panama, Paraguay and Venezuela. These countries adopt first-past-the-post systems, also known as plurality systems, in which the office is awarded to the candidate who wins a plurality or "simple majority" of the votes, even if this is less than the "absolute majority".

In the two-round system, only candidates who obtain an absolute majority of votes in the first round are declared elected. This absolute majority is commonly defined as 50% or more of the valid votes, leaving out the count blank or spoiled votes. If no one reaches absolute majority, a second round is held between the two candidates who got the highest number of votes. The runoff election is organized shortly after the first round.

One should observe that there is a linkage between electoral systems and party systems (Duverger, 1959; Grofman & Lijphart, 2002). As stated by Duverger`s Law, the simple-majority single-ballot system favors the two-party system (Duverger, 1959). In a second proposition, Duverger also observed that second-round majority systems favor multi-party systems. In fact, in the 2012-2015 electoral cycle in Latin America, plurality system countries have an Effective Number of Candidates between 2.01 and 3.59 – mean of 2.95. Yet two-round system countries have between 2.07 and 6.62, an average of 3.81.

Despite of these differences, there is only a correlation of 0.283 between party and electoral systems in the sample of 16 countries analyzed in this research. Only two countries have party systems with two strong candidates – Venezuela, with a plurality electoral formula, and Dominican Republic, with a two-round system.

One of the characteristics of the two-round system is strategic voting (Cox, 1997). Supporters of one party are likely to desert to another candidate that shares similar ideology, depending on the expectations about how well each candidate will do. Two-round systems also favor strategic candidates – running without any chances to be elected, but willing to set the agenda for a particular cause. In this sense, two-round systems make it possible for candidates to have a more representative sample of issues for a broader constituency, attracting a larger electorate. The two-ballot system also gives fewer incentives for elites to form coalitions in the first round. Following:

Hypothesis 2: Two-Round systems will have higher participation than plurality systems.

3.3.3. Incumbency

Incumbents have the institutional advantage and visibility of occupying a public office. While in government, the main party leaders, organized in public offices, occupy a clear position in the state bureaucracy, with a natural hierarchy, depending on the importance of the office and the issues, as perceived by society and the governmental structure, not only through government time, but also historically, as the state was organized in previous

governments.

As an example, the Department of Treasury in Brazil was always perceived as one of the most important seats of the government, especially during periods of economic crisis. The success of Fernando Henrique Cardoso with Plano Real to stabilize the economy and fight high inflation rates, in 1994, made him a strong candidate for the Presidency. Another strategic position in Brazilian government structure is the chief of Staff of the Presidency, the second highest-ranking member of the Executive Office. The position, responsible to assist the president and oversee all bureaucracy involving the Presidency, gave Dilma Rousseff an advantage to her candidacy in 2010.

Not only Cardoso and Rousseff, but several other Latin American presidents have occupied positions in the national government before the election by incumbent parties. Another example is Juan Manuel Santos, who was minister of Defense of Colombia. A public office also gives more visibility and media exposure to the candidate. Challengers can also be public officials on state or local governments. But this would give them a popularity restricted to a particular geography, which would not be extended to the national electorate.

The incumbency advantage in social media is demonstrated in a bizarre political marketing stunt in which new technology absorbed old fashioned clientelistic practices. Trying to get more followers in his Twitter account, president of Venezuela Hugo Chávez (@chavezcandanga) rewarded his three-millionth Twitter follower with a new home in a public housing complex (La Nacion, 2012). That is a sad example of how the information revolution can take different and unexpected turns according to old institutions. Following:

Hypothesis 3: Campaign spheres from incumbent parties will have higher participation than a challenger as, while in government, she will have a higher visibility.

3.3.4. Party Ideology

In the transitions from authoritarian rules to democracy, most Latin American countries experienced changes based on gradual installment rather than on a dramatic event (O'Donnell & Schmitter, 1986). In this sense, democratization in most cases favored moderation and the election of center and center-right parties, which conserved and deepened their relationships and alliances with the mass media system.

In the end of the 1990s and the beginning of the 2000s, the election of left-wing candidates led to the adoption of policies that pursued redistribution or were perceived as threats to the interests of the proprietary classes. As a result, the entrenched interests of elites on the mass media system intensified, and the press supported an active opposition against the left-wing governments.

The reaction against mass media opposition varied according to the coalition configuration of softline or hardline left parties. In countries where the government coalition included center parties or the left party had moved itself to the center (like Chile and Brazil), the relationship with the mass media, if not always peaceful, was mostly civil. In countries where the left has conserved itself as a "hardline" faction, and even maintaining the goals of promoting a social revolution (Venezuela, Ecuador, Bolivia), the confrontation resulted in interventions in the media system, with the loss of Press Freedom. Finally, the process meant

a disruption between mass media and the left, resulting that left-wing parties were more enthusiastic in investing in social media and adapting to the new media environment. This results in the following hypothesis:

Hypothesis 4: Left-wing candidates will have more participation than right-wing candidates, who have stronger connections to mainstream mass media.

3.3.5. Population

In "The Logic of Collective Action", Olson (1971) notices that, as population and urbanization increase, types of collective goods and externalities with which governments have to deal are more numerous, diverse in their scope and important over time. Therefore, countries with larger populations and larger urbanization will have a higher number of interests, with a larger scope and complexity.

Larger population will result in collective action problems, as more numerous and larger groups will provide a smaller fraction of public goods and make it harder for single individual's contribution to collective action to make a perceptible difference (Olson, 1971). As a result, individuals have incentives to free-ride and not participate in large groups. Therefore, the need for political entrepreneurs to form organizations with selective incentives, either coercion or some reward that can be given only to those who contribute to the group efforts (Olson, 1971).

Analyzing how the changed media environment affects Olson`s theory of collective

action, Bimber, Flanagin & Stohl (2005) propose a new definition for public goods as free-riders find it easier to participate in political networks, in which the boundaries between public and private are crossed. Bennett & Segerberg (2013) formulate a theory of "connective action", in which there is loose, little or no formal organization to coordinate actions. In this fashion, large-scale connective action is possible when coordinated by personalized digital networks, with access to social technologies and communication centered on inclusive personal action frames and personal expression.

My hypothesis is:

Hypothesis 5: Countries with larger population will have lower participation.

3.3.6 GNI per capita growth

There is a linkage between economic indicators and government evaluation, making these parameters often used in forecasting models for national elections (Abramowitz, 1988; Campbell, 1996). Bad or poor economic performance will result in a larger unsatisfied population, giving them incentives to defend their interests in the ballots. Depending on the conditions of a country, a decrease in GNI per capita could affect participation.

Hypothesis 6: Countries with poor economic performance will have higher participation.

3.4. Methods

3.4.1 Sample and procedures

I collected 16.6 million Twitter posts from 57 campaign spheres in 16 presidential elections in Latin American countries, between 2012 and 2015. Data collection was divided in three different periods: (1) 12.6 million posts during the 120 days before Election Day; (2) 1.9 million posts between first round and second round elections; (3) 2 million posts during the 30 days after the election. It`s worth-noting that only eight countries had second round elections – Argentina, Brazil, Chile, Colombia, Costa Rica, El Salvador, Guatemala and Uruguay. Search terms for data collection were based in the campaign sphere theory (see Chapter 2 and Appendix A).

In order to build a campaign sphere network, I downloaded tweet ids through the platform Crimson-Hexagon, a web-based library. Tweet ids are integer representations of the unique identifier of a Twitter post (also known as a status update). With the tweet ids, it is possible to hydrate posts with all their metadata, using the Python library twarc[7]. This means that the tweet object will not only display the text, but also indicate its long list of attributes, including the user who created it, how many followeres and friends the user have, geolocation, data, language, profile image, etc. Twitter's Terms of Service do not allow the full Java Script Object Notation (JSON) for datasets of tweets to be distributed to third

[7] twarc is a command line tool and Python library developed as part of the Documenting the Now (DocNow) project supporting the ethical collection, use and preservation of social media content. It was first used to archive police abuse reports documented on Twitter following the controversial 2014 killing of 18-year-old African-American Michael Brown, in Ferguson, Missouri, which had become a focal point of the Black Lives Matter campaign (Wortham, 2016).

parties, but they admit datasets of tweet ids to be shared. After hydration, each tweet is represented as a JSON object that is exactly what was returned from the Twitter Application Programming Interface (API).

Crimson-Hexagon limits tweet id downloads to 10,000 posts by day for each campaign sphere. In days when the campaign sphere had more than this limit, the platform returns a random sample of 10,000 posts. This restriction does not compromise the data. First, De Nooy et al. (2011) admit the possibility of statistical inference based on a random sample for basic network properties. Second, I verified that volume of Twitter data only reaches this threshold with 32 of the 57 candidates – in average 29 days by each candidate, while data collection involved 151 days to 218 days, depending on a country having a second round election. Volume of posts was higher than 10,000 mostly in days closer to the election. Any missing data on these limited days will be of actors who were already participating in other days collected previously or other actors who have weak ties to the network – simply because the later were only participating in the days shortly before the election. Due to the low volume of Twitter posts, Bolivia, Costa Rica, Guatemala and Uruguay didn`t have missing data.

An advantage for this approach is that I don`t get posts from false or spam accounts that were suspended by Twitter during election time, because the hydration process was only executed after the election. Subjects also have the possibility of erasing posts that they regret being publicized, which avoids noise on the data and gives more accurate representation to one individual`s opinions. This follows ethical practices when working with social media data, Twitter`s notion of honoring user intent and the rights of content creators.

Campaign sphere data was aggregated to form one-mode network matrices, where each vertex can be related to every other vertex[8]. I constructed the information network of Twitter user interaction investigating @username mentions, which represent the name value of a user. This is a better method than the very passive follower network, in which directed links could represent anything, from intimate friendship to common interests, a passion for breaking news and celebrity gossip, or merely etiquette – it`s polite to follow someone who`s following you –, resulting that many followers do not read and diffuse posts (Cha et al., 2010; Huberman et al., 2009).

I also gather retweets, posts in which users pass along information to their followers. Because of that, I only use the first mention in a post. If a message is retweeted more than one time, previous @usernames will appear in the post as second, third or even higher order mentions, giving more noise to the data by showing vertices and arcs that were already included in the matrix. By only considering first mentions, I give more precision to the data, as each post will count only as one mention and one direct link.

Previous research has demonstrated some difference on mentions and retweets. If retweets represent a citation of another user's content, mentions represent a public response to another user's tweet — the focus of a tweet is on content for retweets, while the focus is on the replied user for mentions (Cha et al., 2010). While the network of political retweets exhibits a highly segregated partisan structure, with extremely limited connectivity between left and right-leaning users, a mention network is dominated by a politically heterogeneous cluster of users in which ideologically-opposed individuals interact at a much higher rate

[8] In a one-mode network, each vertex can be related to every other vertex. In a two-mode network, vertices are divided into two sets and vertices can be related only to vertices in the other set.

compared to the network of retweets (Conover et al., 2011). By aggregating retweets and mentions, normalized with total tweets, I am getting a better representation of the campaign sphere network, having a broader dimension of users` interactions.

The 57 campaign spheres were structured in 57 different networks, having from 4,098 to 871,272 arcs, an average of 219,127 in the first or single round. Vertices varied from 713 to 160,012 actors, an average of 32,079 in the same period (for the complete relation of number of vertices and arcs by candidate, see Appendix B). To calculate the network metrics for the dependent variables I used the program Pajek for analysis and visualization of large networks (Batagelj & Mrvar, 1998).

3.4.2 Measures

Dependent Variables:

Participation (Average Degree) – This measure represents how many times, how intensely or strongly people participate in a campaign sphere network of a candidate. In social network analysis, degree is the rate of participation of an actor, here represented by Twitter handle. The degree of a vertex is the number of lines incident with it. I use average degree to measure participation in a network. Average degree of all vertices also measures the structural cohesion of a network. It is a better measure than density because it does not depend on network size (De Nooy et al., 2011).

In a preliminary observation, participation (AD) is higher on two-round system

countries than in plurality system countries: 16.4 against 15.7, respectively (see table 3.2). However, there is a decline in participation in Two Round System countries during the second round (AD = 10), here measuring only the candidates who were actually competing at the time, and not those who came in third place or behind in the first round. This decrease in participation is noticed in all candidates, of all the eight countries that had runoff elections, in the comparison with their first round elections. In the 30 days after election, participation declines in all countries to 5.3 in average.

Table 3.1. Participation (AD) in Latin American campaign spheres (2012-2015)

	All countries, First or Single Round	Plurality System countries	Two Round System - First Round	Two Round System - Second Round	All countries, after elections
Mean	16.216	15.663	16.414	10.083	5.325
Median	13.267	12.215	13.976	8.366	4.853
Mode	15.832	15.735	15.832	7.162	5.063
SD	10.299	8.672	10.911	4.038	2.814
N of candidates	57	15	42	16	57

Note: Countries with Plurality Systems are Honduras, Mexico, Panama, Paraguay and Venezuela. Countries with Two Round Systems are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala and Uruguay. From those countries, only Bolivia, Dominican Republic and Ecuador didn`t have runoff elections.

Participation (Vertices Share) – This measure represents how many people participate in a campaign sphere network. I calculate the percentage of vertices (actors) that one campaign sphere network has in a given country, proportional to the sum of all campaign spheres` vertices in the country. It is represented with the formula:

$$N = v_c / \Sigma v_n$$

where v is the number of vertices in a campaign sphere network, here represented by Twitter handles; c is a candidate and n is the number of candidates in the country.

Number of vertices in a campaign sphere network vary according to the size of the

country`s population and is also higher in Plurality System countries (see table 3.2). In Two Round System countries, number of vertices decreases in the second round. This drop is explained not only because there are less candidates in the runoff election. Each candidate competing in the second round has fewer actors than it had in the first round. There is also a decline of number of vertices in all countries after elections.

Table 3.2. Vertices in Latin American campaign spheres (2012-2015)

	All countries, First or Single Round	Plurality System countries	Two Round System - First Round	Two Round System - Second Round	All countries, after elections
Mean	32079.74	52572.27	24760.98	20344.06	12544.56
Median	11667	14346	10191.5	9400	3330
Mode	88919	5596	88919	65015	34338
SD	42534.19	63627.07	29667.39	18939.72	21433.55
N of candidates	57	15	42	16	57

Note: Countries with Plurality Systems are Honduras, Mexico, Panama, Paraguay and Venezuela. Countries with Two Round Systems are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala and Uruguay. From those countries, only Bolivia, Dominican Republic and Ecuador didn`t have runoff elections.

Independent Variables

Party System – This measure is based on the formula elaborated by Laakso and Taagepera (1979) to indicate the adjusted number of political parties in a country's party system, according to the number of presidential candidates. It is represented by the formula:

$$N = 1 / \Sigma_n c^2$$

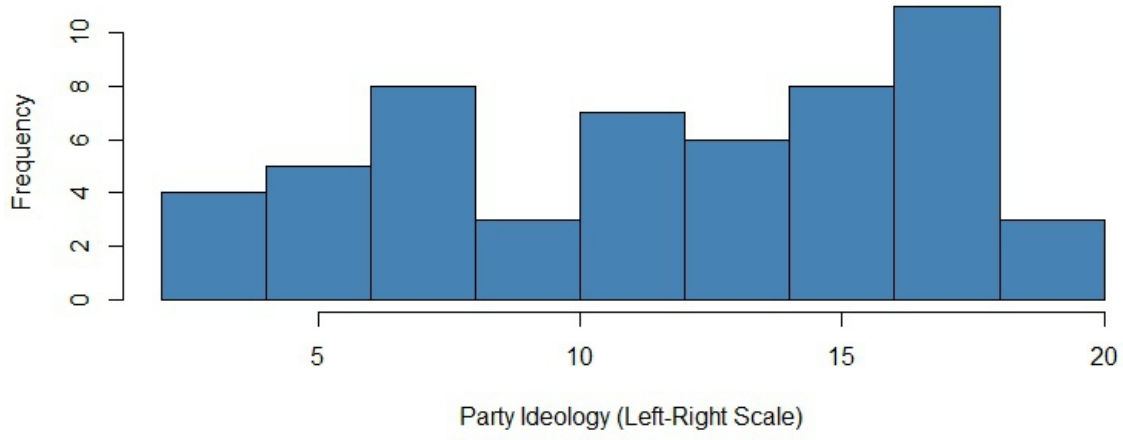
where n is the number of presidential candidates and c^2 is the square of each candidate's proportion of all votes.

Two Round System – A dichotomous variable in which 0 means a country with Plurality System and 1 represents a country with Two Round System.

Incumbent – A dichotomous variable in which 0 means a candidate from a challenger party and 1 represents a candidate from an incumbent party.

Party Ideology – I use Baker`s Party Ideology Scores for Latin American presidential elections (Baker & Greene, 2011). The scores are based on the 1 ↔ 20 Wiesehomeier-Benoit (W-B) scale, the mean placement by experts on a simple left-to-right scale, running from extreme left (1) to extreme right (20) (Wiesehomeier & Benoit, 2009). In the 2012-2015 electoral cycle, only two candidates don`t have a Party Ideology Score: the independent candidate Franco Parisi, from Chile, who would identify himself as "social liberal", and Dr. Giammattei, from Guatemala. One should observe that in Latin America the candidates lean to the center-right and right wing spectrum (*see graphic 3.1*).

Graph 3.1. Presidential candidates in Latin America by Party Ideology (2012-2015)



Population – Total population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship. The values are midyear estimates during election year. Source is World Bank open data.

GNI per capita growth – Annual percentage growth rate of Gross National Income per capita based on constant local currency during election year. GNI per capita is gross national income divided by midyear population. GNI (formerly GNP) is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Source is World Bank national accounts data, and OECD National Accounts data files.

Elected – A dichotomous variable in which 1 means candidates elected in the first,

single or second round, and 0 represents the candidates who were not.

3.5. Findings

3.5.1. Participation (Average Degree)

In a linear relationship, party systems with more candidates have lower participation in social media campaign spheres. Electoral systems also have an influence over this dependent variable, which is expected as the rules for party competition will affect the number of candidates. While the number of parties in countries with two-round systems have a negative effect on how many people participate in a campaign sphere network, this relationship is not proved by the plurality countries data. The coefficients of party system on these countries have a positive direction, although not statistically significant.

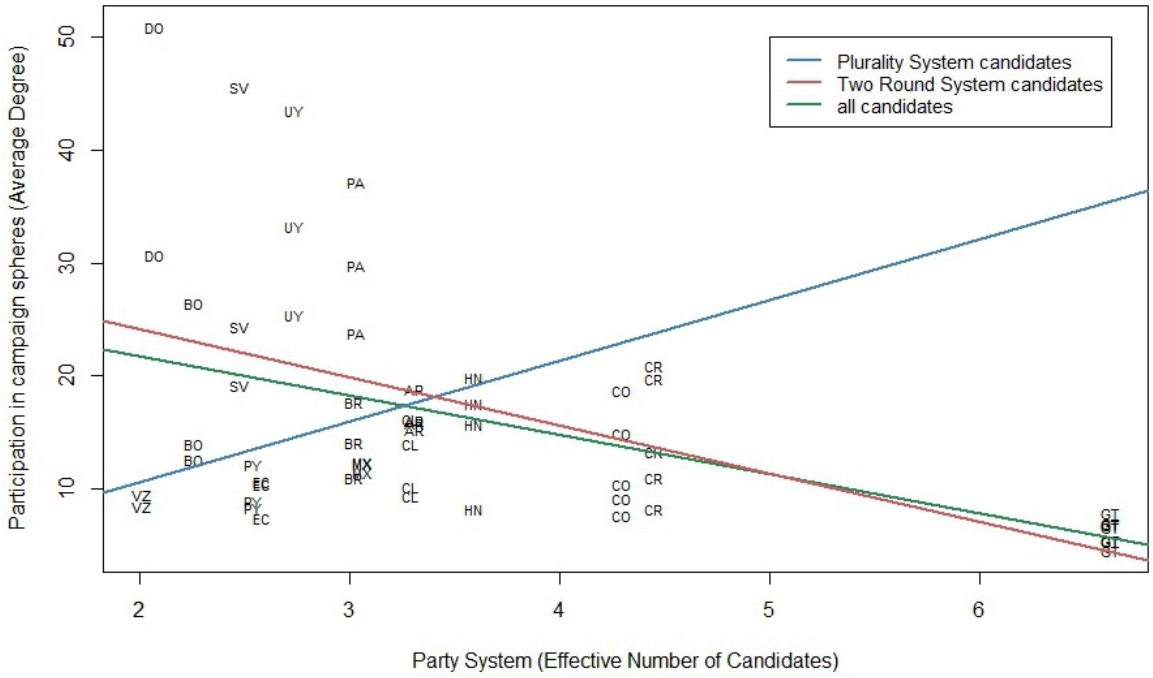
It's possible that there is not a relationship between plurality systems and participation. However, another explanation for plurality systems not getting relevant relations is that the number of candidates is lower: only 15, distributed in five countries, as compared to 40 in the 11 countries with Two Round Systems. Also, there is less variation in the number of candidates.

Table 3.4. OLS Estimates predicting Participation (AD) in Latin American campaign spheres (2012-2015)

	Model 1a All countries, First or Single Round	Model 2a Plurality System countries	Model 3a Two Round System - First Round	Model 4a Two Round System - Second Round	Model 5a All countries, after elections
Intercept	100.783 (18.631)***	73.116 (43.036)	107.777 (22.015)***	55.057 (10.936)***	18.871 (6.174)**
Party System	-4.090 (0.933)***	1.584 (5.028)	-4.257 (0.952)***	-1.145 (0.619)#	-0.596 (0.309)*
Two Round System	3.047 (2.711)	---	---	---	-0.516 (0.896)
Incumbent	-1.290 (2.486)	-2.795 (5.005)	-0.794 (3.003)	-0.487 (1.569)	-0.371 (0.882)
Party Ideology	0.133 (0.236)	0.287 (0.529)	0.061 (0.277)	0.080 (0.159)	-0.033 (0.079)
Population. logged	-4.237 (1.050)***	-3.790 (2.117)	-4.229 (1.252)**	-2.387 (0.650)**	-0.609 (0.347)#
GNI per capita growth	-1.015 (0.406)*	-0.522 (0.545)	-2.141 (0.874)*	-0.754 (0.583)	-0.223 (0.134)
Elected	---	---	---	---	0.920 (0.894)
Residual standard error	8.256 on 48 degrees of freedom	8.454 on 9 degrees of freedom	8.246 on 34 degrees of freedom	2.871 on 10 degrees of freedom	2.726 on 47 degrees of freedom
Multiple R-squared	0.4379	0.389	0.514	0.663	0.191
N of candidates	55	15	40	16	55

Note: The dependent variable is Average Degree in campaign sphere networks. Countries with Plurality Systems are Honduras, Mexico, Panama, Paraguay and Venezuela. Countries with Two Round Systems are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala and Uruguay. From those countries, only Bolivia, Dominican Republic and Ecuador didn`t have runoff elections. Cell entries are coefficients with standard errors in parentheses. #p≤ 0.10 *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Graph 3.2. Party System and Participation (AD)
in Latin American campaign spheres (2012-2015)



Note: Candidates are identified by country codes: AR (Argentina), BO (Bolivia), BR (Brazil), CL (Chile), CO (Colombia), CR (Costa Rica), DO (Dominican Republic), EC (Ecuador), GT (Guatemala), HN (Honduras), MX (Mexico), PA (Panama), PY (Paraguay), SV (El Salvador), UY (Uruguay), VZ (Venezuela).

Graph 3.2 demonstrates the possibility that, in plurality systems, a higher number of parties might increase participation, while in two-round systems there is the opposite relationship, in which a lower number of parties increase participation.

This only seems to be a contradiction. The electoral system not only affects the number of parties, but also the type of parties that are formed and the expectations for voters and candidates. In theory, there could be an optimal number of parties most favorable to increase participation in each electoral system. Of course, there is no single answer to this question, as the ideal number of parties can only be defined considering the specific history and political culture of each country and its social stratification.

In another perspective, the negative effect of number of parties over participation in two-round systems must inspire concern. If this finding is true, the institutions are giving the wrong answers to the representation crisis, as party systems in Latin America have only increased fragmentation in the last decade, with the insurgence of new parties that not always have a clear ideology or purpose.

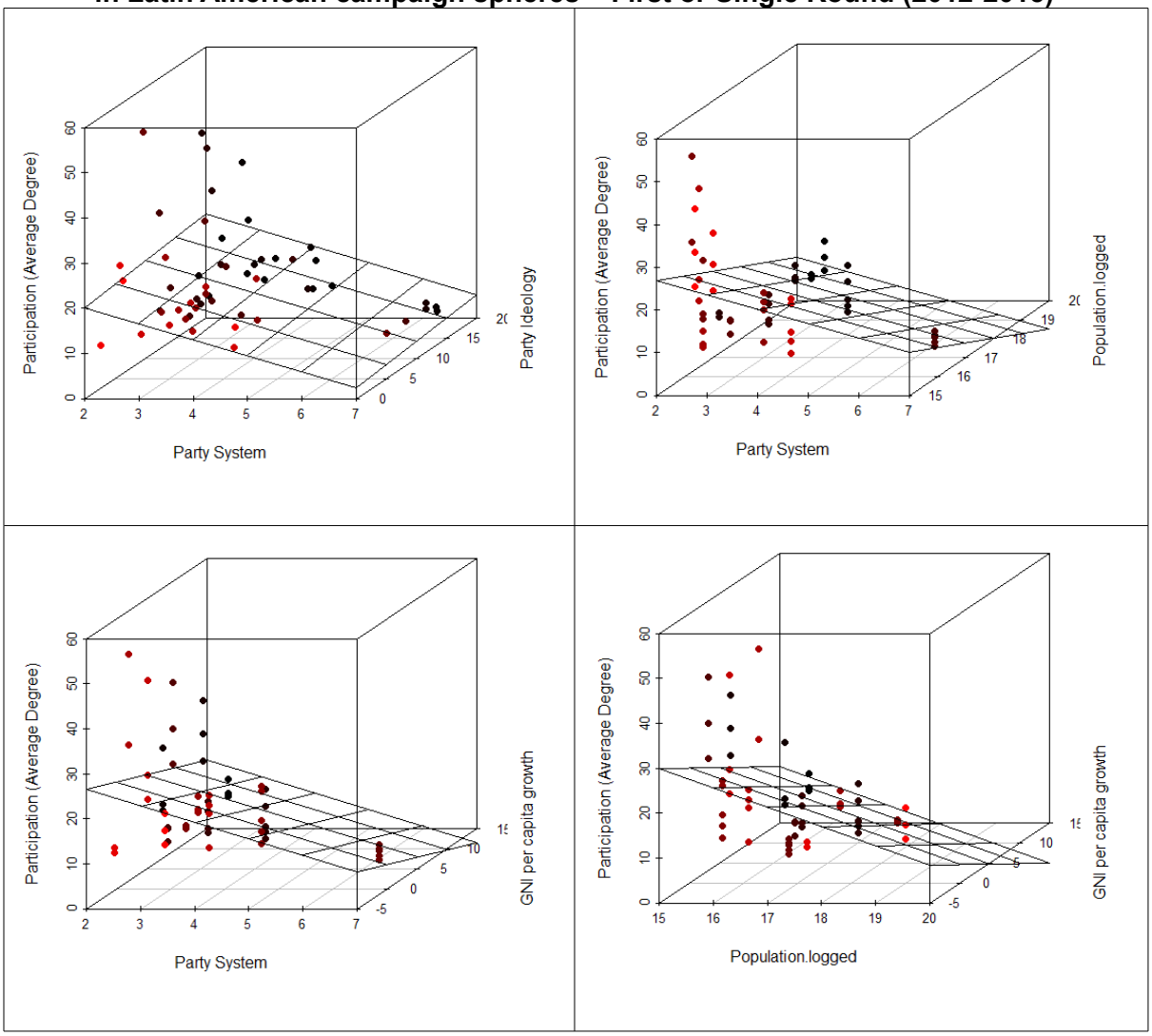
Campaign spheres in countries with larger population have lower participation, especially for two-round system countries. These findings were confirmed both in the first and second round.

GNI per capita growth has a negative relationship with participation (-1.015), which means that people tend to participate more in countries where the economy is going worse. This relationship was only significant in the first round.

Party System is almost significant in the second round, with a t-test=0.09. This variable is statistically significant if I drop GNI per capita growth from the model, when Party System gets a coefficient of -1.374, with a multiple R-Squared of 0.606 and Residual Standard Error of 2.958 on 11 degrees of freedom. Population.logged would also remain significant in this model.

Party system, population.logged and GNI per capita growth have different interactions with participation (AD), which can be observed on 3D models on Graph 3.3.

Graph 3.2. 3D Scatterplots predicting Participation (AD)
in Latin American campaign spheres – First or Single Round (2012-2015)



In the period of 30 days after elections, I added the variable "elected" to the model, to verify if the election results would increase participation for the elected candidate. Even if it demonstrated a positive direction, the coefficient was not statistically significant. Party systems were still significant after elections, and population.logged was on the edge of almost being significant.

I also tested nonlinear relationships between the dependent and independent variables,

but didn`t find any interesting models with a better fit.

3.5.2. Participation (Vertices Share)

In this measure of participation, party system cannot be added in the models as the number of parties is already implicit in the formula of vertices share – mathematically, a lower number of parties will necessarily result in higher vertices share. Context variables (population.logged and GNI per capita growth) are included in the models mainly as controls for the performance of candidates according to incumbency and party ideology. However, if the context variables are dropped out of the model, Intercept coefficients get significant without much change in Multiple R-Squared (*see tables 3.5 and 3.6*).

The models show that incumbency is the only significant predictor for number of participants in campaign spheres. This effect is mostly induced by two-round system countries – isolated, plurality system candidates have a negative incumbency effect (though not statistically significant) and two-round system candidates in the first round have a larger incumbency effect – coefficients go from 0.106 (all countries) to 0.149 (two-round system countries in the first round).

In the 30 days after the election, president elects` campaign spheres had more participation (VS). Incumbency advantage is not significant anymore, but the model gets stronger, with a Multiple R-Squared of 0.591.

Table 3.5. OLS Estimates predicting Participation (VS) in Latin American campaign spheres (2012-2015)

	Model 1b All countries, First or Single Round	Model 2b Plurality System countries	Model 3b Two Round System - First Round	Model 4b Two Round System - Second Round	Model 5b All countries, after elections
Intercept	0.437 (0.301)	-0.061 (0.566)	0.510 (0.356)	0.808 (0.320)*	0.274 (0.334)
Party System	---	---	---	---	---
Two Round System	-0.071 (0.042)	---	---	---	-0.052 (0.047)
Incumbent	0.106 (0.040)*	-0.018 (0.075)	0.147 (0.048)*	-0.007 (0.045)	-0.049 (0.048)
Party Ideology	-0.005 (0.004)	0.002 (0.008)	-0.005 (0.004)	0.003 (0.005)	-0.001 (0.004)
Population. logged	-0.004 (0.017)	0.022 (0.032)	-0.012 (0.020)	-0.026 (0.019)	-0.002 (0.019)
GNI per capita growth	-0.003 (0.007)	0.001 (0.008)	-0.011 (0.014)	-0.031 (0.082)#	-0.002 (0.007)
Elected	---	---	---	---	0.376 (0.048)***
Residual standard error	0.134 on 49 degrees of freedom	0.131 on 10 degrees of freedom	0.134 on 35 degrees of freedom	0.084 on 11 degrees of freedom	0.148 on 48 degrees of freedom
Multiple R-squared	0.205	0.054	0.281	0.267	0.591
N of candidates	55	15	40	16	55

Note: The dependent variable is Vertices Share in campaign sphere networks. Countries with Plurality Systems are Honduras, Mexico, Panama, Paraguay and Venezuela. Countries with Two Round Systems are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala and Uruguay. From those countries, only Bolivia, Dominican Republic and Ecuador didn`t have runoff elections. Cell entries are coefficients with standard errors in parentheses. *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005 # p ≤ 0.10

Table 3.6. OLS Estimates predicting Participation (VS) in Latin American campaign spheres – no context variables (2012-2015)

	Model 6b All countries, First or Single Round	Model 7b Plurality System countries	Model 8b Two Round System - First Round	Model 9b Two Round System - Second Round	Model 10b All countries, after elections
Intercept	0.360 (0.058)***	-0.332 (0.011)**	0.284 (0.057)***	0.364 (0.064)***	0.235 (0.067)***
Party System	---	---	---	---	---
Two Round System	-0.066 (0.040)	---	---	---	-0.047 (0.044)
Incumbent	0.106 (0.039)**	-0.011 (0.070)	0.149 (0.048)**	-0.011 (0.048)	-0.047 (0.047)
Party Ideology	-0.005 (0.004)	0.000 (0.001)	-0.005 (0.004)	0.001 (0.004)	-0.001 (0.004)
Population. logged	---	---	---	---	---
GNI per capita growth	---	---	---	---	---
Elected	---	---	---	---	0.374 (0.048)***
Residual standard error	0.132 on 51 degrees of freedom	0.123 on 12 degrees of freedom	0.132 on 37 degrees of freedom	0.090 on 13 degrees of freedom	0.146 on 50 degrees of freedom
Multiple R-squared	0.203	0.002	0.265	0.006	0.591
N of candidates	55	15	40	16	55

Note: The dependent variable is Vertices Share in campaign sphere networks. Countries with Plurality Systems are Honduras, Mexico, Panama, Paraguay and Venezuela. Countries with Two Round Systems are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala and Uruguay. From those countries, only Bolivia, Dominican Republic and Ecuador didn`t have runoff elections. Cell entries are coefficients with standard errors in parentheses. *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Although not demonstrated in the previous models, party ideology might influence the effect of institutions on participation. Isolating left-wing candidates (Political Ideology <8) and right-wing candidates (Political Ideology >12), the incumbency advantage proved to be significant only for the former; especially in two-round system countries (*see tables 3.7 and 3.8*). This effect was not significant for right-wing candidates` models. Yet the models

with left-wing candidates have high Multiple R-Squared, greater than 0.68.

These findings support the hypothesis that left-wing candidates will have more participation than right-wing candidates, as a result of the election of left-wing government who suffered the mass media opposition (Hypothesis 4a).

In another finding, two-round system has a negative effect on participation (VS) in campaign spheres of right-wing candidates. Winning the election is a significant predictor of participation (VS) in the 30 days after the election, both for left-wing and right-wing.

Table 3.7. OLS Estimates predicting Participation (VS) in Latin American left-wing campaign spheres (2012-2015)

	Model 11b All countries, First or Single Round	Model 12b Two Round System – First Round	Model 13b All countries, After Elections
Intercept	0.219 (0.048)***	0.200 (0.036)***	0.181 (0.074)*
Two Round System	-0.014	---	-0.038 (0.085)
Incumbent	0.270 (0.048)***	0.285 (0.058)***	0.004 (0.118)
Elected	---	---	0.373 (0.115)**
Residual standard error	0.094 on 14 degrees of freedom	0.102 on 11 degrees of freedom	0.143 on 13 degrees of freedom
Multiple R-squared	0.695	0.688	0.686
N of candidates	17	13	17

Note: Left-wing candidates have Party Ideology < 8. Of the 17 left-wing candidates, 6 are incumbents: Evo Morales (Bolivia), Dilma Rousseff (Brazil), Rafael Correa (Ecuador), Sanchez Ceren (El Salvador), Tabaré Vázquez (Uruguay) and Nicolas Maduro (Venezuela). The dependent variable is Vertices Share in campaign sphere networks. Countries with Plurality Systems are Honduras, Mexico, Panama, Paraguay and Venezuela. Countries with Two Round Systems are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala and Uruguay. Due to the low number of candidates, it was not possible to estimate models for leftist candidates in plurality systems and in runoff elections. Cell entries are coefficients with standard errors in parentheses. *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

Table 3.8. OLS Estimates predicting Participation (VS) in Latin American right-wing campaign spheres (2012-2015)

	Model 11b All countries, First or Single Round	Model 12b Two Round System – First Round	Model 13b All countries, After Elections
Intercept	0.364 (0.049)***	0.229 (0.029)***	0.279 (0.083)**
Two Round System	-0.131 (0.052)*	---	-0.086 (0.073)
Incumbent	-0.050 (0.052)	-0.030 (0.064)	-0.122 (0.068)#
Elected	---	---	0.347 (0.074)***
Residual standard error	0.118 on 25 degrees of freedom	0.115 on 18 degrees of freedom	0.154 on 23 degrees of freedom
Multiple R-squared	0.2044	0.012	0.560
N of candidates	28	20	28

Note: Right-wing candidates have Party Ideology > 12. Of the 28 right-wing candidates, 8 are incumbents: Evelyn Matthei (Chile), Juan Manuel Santos (Colombia), Johnny Araya (Costa Rica), Mario David Garcia (Guatemala), Juan Orlando Hernández (Honduras), Josefina Vázquez Mota (Mexico), José Domingo Arias (Panama) and Efraín Alegre (Paraguay).The dependent variable is Vertices Share in campaign sphere networks. Countries with Plurality Systems are Honduras, Mexico, Panama, Paraguay and Venezuela. Countries with Two Round Systems are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala and Uruguay. Due to the low number of candidates, it was not possible to estimate models for right-wing candidates in plurality systems and in runoff elections. Cell entries are coefficients with standard errors in parentheses. *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005 #p ≤ 0.10

3.6. Conclusions

Institutions, party ideology and social context matter in electoral campaign spheres, determining how actors participate. Party systems are important to predict how intensely people participate in digital campaigns, while incumbency increases the number of participants. But incumbency is only relevant to predict participation (VS) in left-wing campaign spheres, and not for right-wing networks. President elects also had more participation (VS) after the election – but not more participation (AD).

Two-round-systems had a negative impact on the participation (VS) of right-wing

campaign spheres. Two-round systems, the most common in Latin America, seem to be worse for participation in campaign spheres, as most of these findings were induced by these countries, especially in the first round. Taking plurality countries out of the sample, I noticed that institution effects increased for two-round system countries.

Plurality countries had results pointing to the right conditions for digital campaigns, and opposite directions as compared to two-round system countries: there was more participation with a larger number of parties. However, some times the coefficients were not statistically significant for plurality countries, maybe due to the fact that there is a small sample of candidates – only 15, against 42 on TRS. Therefore, we need more evidence to verify if institutional variables do not affect plurality system countries, as they could be affected in different ways. These hypotheses need more research to be confirmed.

Institutional effects (party system and incumbency) performed poorly during the second round. This can be caused mostly by the low number of candidates (only 16), but there is also the possibility that a runoff election has very similar conditions as a plurality system, with only two candidates by country and no strategic voting. Context variables (population.logged and GNI per capita growth) were only relevant for participation (AD), but not for the number of participants.

4. How institutions affect prestige in campaign spheres

4.1. Introduction

A candidate`s digital name is as much valuable to her campaign as a trademark to a company. In the same way the trademark is used to identify the products and make them able for market competition, a candidate`s digital name provides a label for information related to the candidate and the campaign during the election, distinguishing it from information from other candidates or sources. This is of central importance on election campaigns, as people tend to evaluate information according to its source and individuals seek to incorporate new information which is consistent to their prior beliefs (Zaller, 1992).

On Twitter, a candidate can generate as much labels as she strategically finds important, by using hashtags or short slogans, words and phrases. However, her @username (also known as her Twitter handle) is the most stable and broad information identifier, while hashtags, slogans, words and phrases can be linked to specific issues or agendas, particular events, moments or features of the campaign. If a post contains a @username, anyone who sees it can easily send a direct message to the candidate, start following the candidate or find

more posts from or about the candidate.

These specific issues, frames, symbols, topics, hashtags and social network handles, recognized and used by a candidate during a campaign, are the building blocks to a candidate`s campaign sphere. A campaign sphere is an information system connecting a candidate to potential voters and supporters through mobilization, instead of deliberation. It`s not an overstatement to say that the candidate`s @username is the most important building block in a campaign sphere, and will be fundamental for information diffusion.

Research has demonstrated that having followers does not always mean much in Twitter and other social media services. Instead, it is more influential to have an active audience who retweets or mentions the @username (Cha et al., 2010). As observed by Yang & Counts (2010), the mention rate of the person tweeting is a strong predictor of all aspects of information diffusion through social networks in Twitter. If a candidate wants to spread information about her campaign, first as a condition she needs to have her Twitter handle well-known and mentioned. "Other attributes of the tweets themselves, such as whether it includes a link or comes at the early or late stages of a topic also are important, but based on our analysis we suggest utilizing these in conjunction with properties of the user for any type of network ranking algorithm", suggest Yang & Counts (2010).

When a candidate's @username is more mentioned in her campaign sphere, she enjoys more prestige. Prestige is defined as socially accepted rank, meaning rank privately accepted by most or all the relevant population (Whitmeyer, 2007). Connected to asymmetric relations, ranking is one of the key topics in social network analysis, and is discussed here by the concept of prestige as a particular pattern of social ties.

In the case of positive relations, such as friendship nominations or advice seeking, people who receive many choices and reciprocate few choices are deemed as enjoying more prestige. “If everybody likes to play with the most popular girl or boy in a group but he or she does not play with all of them or, in the case of sentiments, if people tend to express positive sentiments toward prestigious persons but receive negative sentiments in return. In these cases, social prestige is connected to social power and the privilege of not having to reciprocate choices”, explain De Nooy et al. (2011).

By verifying the prestige of a candidate through her @username mentions, I can verify the name value of the candidate in her campaign sphere. Simply put, prestige indicates to what extent is the candidate present, by name, in conversations taking place about the frames, issues, concerns, hashtags that she cares about and define her campaign sphere. A citizen or opinion leader could be in a particular candidate`s campaign sphere by talking about specific issues, as crime or food prices. That citizen may or may not specifically refer to the candidate by name. Prestige represents the fraction of those who refer to the handle of the candidate. Whenever someone mentions the @username, that counts towards prestige and the citizen goes in the numerator as well as the denominator.

Prestige will indicate how effectively a candidate can push her own agenda or her frames through her campaign network. “Prestigious people are thought to influence people who regard them as their leaders”, say De Nooy et al. (2011). However, the expected influence of a candidate over her campaign sphere will also depend on the network structure, which could be more homogenous or heterogeneous, according to the party coalition. Parties usually manage to unite behind a single candidate and fail to do so only when voters`

interests diverge too much (Whitmeyer, 2007). I also expect that prestige will have a variation to institutional and contextual variables.

Opponents avoid to use each other's @usernames and, instead, might even give them negative nicknames – in the same way @realDonaldTrump would refer to @HillaryClinton as #crookedhillary in the 2016 United States elections. This is an example of how campaign spheres have clear boundaries between them, and are not inclusive as the public sphere.

Hashtags, slogans, symbols and phrases will have more strength and value to the campaign as they avoid confusion between competitors – not only they use distinct labels and frames, but they are also related to different issues and agendas, in a way that citizens and opinion leaders are unlikely to believe they come from the same source. A candidate`s hashtags, slogans, symbols and phrases should not look or sound alike the competitors` labels, nor have similar meanings. However, even if different candidates and their supporters are talking about the same issues and problems, using different labels will help citizens and opinion leaders to identify what is the source of the information.

How well are candidates able to link themselves to communication about the issues and symbols important to their campaigns? What are the best conditions or what constrains candidates to influence their networks? These are the questions I am trying to answer on this chapter. Prior to social media, this has never really been measurable, and there has been no way to know how much candidates' campaign efforts are successful at injecting the candidate into conversations about the issues and topics that the campaign is pushing. Again my hypotheses are that the candidate`s prestige will be moderated by systemic variables: institutions, party ideology and social and economic context of the election.

4.2. Literature Review

Prestige is an enduring feature of political behavior, compatible with and a potential confluence for diverse approaches and interpretations (Wood, 2013). This concept is more recurrently explored as a topic on presidential studies and on international relations, though it is commonly analyzed in the background of theories that are mainly concerned with power and strategic goals. Prestige is distinct but not isolated from power – material, social or imagined (Wood, 2013).

For Neustadt (1960), public prestige is one of the main sources of presidential power, which must be used, with status and authority, to achieve his goals on the bargain between the Congress and actors outside of the formal structure of federal government. Neustadt has a loose definition of prestige. It deals with the president`s popular support outside Washington, but it is not to be considered as approval ratings. For Neustadt, prestige orients action based on expectations of a president perceived popularity, as it anticipates reactions of the voters. Prestige indicates the receptivity by public opinion to presidential direction, and therefore can only be understood considering the interaction between the president and the public.

Before the advent of social media, prestige was a hard concept to measure, and Neustadt recognized it as a subjective factor, a "matter to be judged, not known". For the author, the Congress should be the best thermometer to verify this factor, as most politicians and bureaucrats do not watch poll numbers directly, but assess a president`s prestige by Congressional sentiment, perceived as a pragmatic substitute for public opinion. Neustadt

would define Congress as a “distorting mirror for a President's prestige”.

The presidential public is actually an aggregate of publics, and for Neustadt prestige also accounts for a president`s position abroad. Members of the public are divided not only by different issues but also by degrees of difference in attention paid a president.

As it is based on expectations, prestige is not correlated to a president`s actions or accomplishments. “His prestige turns on what the members of his public think they want and think they get”, observes Neustadt. “His prestige is secure while men outside of Washington accept the hard conditions in their lives.” Personality is also a factor in prestige, but to Neustadt what really matters is “the image of the office, not an image of the man”.

In another perspective, political value of public support, measured by approval ratings, created a politics of prestige and perpetual election or continuous referendum, in which presidents attempt to influence public opinion in order to sell their agenda and maintain public support. The politics of prestige is a condition of the modern presidency (Simon & Ostrom, 1988).

Differently from Neustadt, Simon & Ostrom see a more direct relationship between prestige and public opinion. However, cultivating public support, as demonstrated by the president`s standing in the opinion polls, is intertwined with presidential power. For the authors, public support is understandable and predictable, and presidents attempt to influence public opinion in order to sell their agenda and maintain the necessary levels of public support. The politics of prestige requires that presidents compete with other political actors and an adversarial media in attempting to influence these perceptions.

The scholarship demonstrates that presidents have routinely come to appeal for public

support in their dealings with Congress (Kernell, 2006). Kernell sustains that the president`s ability to marshal public opinion became an important ingredient of his professional reputation within the Washington community, as much as his prestige and reputation became tangled. "Through reputation, prestige has begun to play a larger role in regulating the president`s day-to-day transactions."

The strategic prescriptions of going public – whether in exploiting favorable conditions to advance policy goals or in attempting to improve the incumbent`s prestige – put the office on a campaign footing. In these terms, governing amounts to little more than an extension of the campaign that brought the president into office. According to Kernell (2006), this state of permanent campaign not only intends to generate public support for the president`s policies, but also to generate support for the president himself.

The changed context in the media environment has also changed the capacity of presidents to speak directly to the people (Baum & Kernell, 1999). The same can be applied to candidates in the context of new media. With digital media, a candidate`s network gains prominence in building and evaluating the prestige of politicians.

A candidate might go digital to expand her prestige among publics who can`t be properly reached through other means or to increase her influence over her network of strong partisans and opinion leaders. In a campaign sphere, a candidate will also use her prestige to push her own agenda and frames. As social media is characterized to personalize the political communication environment, a candidate`s personality will represent a much more important factor for prestige than believed by Neustadt.

With social media data, it is possible to measure the structural prestige of a candidate.

The dynamic nature of social media behavior can also determine the evolving nature of a candidates` prestige (Lu et al., 2012).

4.3. Hypotheses

Candidates go digital to exercise or increase their prestige over their networks or other publics. However, I expect that prestige will be constrained by systemic and contextual variables, as follows:

Hypothesis 1: Systems with a lower number of parties have candidates that are more easily recognized and followed by the population. In systems with a larger number of parties there are more extremist candidates, who will have lower prestige. Following, candidates from systems with a lower number of parties will have higher prestige.

Hypothesis 2: In Plurality systems it is more common the competition of "catch-all" parties with members who represent very different interests. Therefore, it is harder for candidates to exercise their influence over the different party factions. My hypothesis is that Two-Round systems will have candidates with higher prestige.

Hypothesis 3: An incumbent candidate will have a higher prestige than a challenger as, while in government, the candidate might demonstrate a greater ability to provide collective goods and the party may develop a stronger influence over the social network.

Hypothesis 4: Left-wing candidates will have more prestige than right-wing candidates, who have stronger connections to the mainstream mass media in Latin America.

Hypothesis 5: The larger the network, the more difficult for a candidate to exercise her influence over the actors. Therefore, candidates in countries with larger populations will have lower prestige.

Hypothesis 6: Constituents can blame politicians, especially incumbents, for bad economic performance. As a consequence, there could be a decline in candidates` prestige. The hypothesis is that countries with poor economic performance will have candidates with lower prestige, especially incumbents.

4.4. Measure

Prestige is measured by the percentage of actors in a campaign sphere who directly mentioned the candidate`s Twitter handle in a post (which is equivalent to the percentage of 1-neighbours of the vertex that represents the candidate). It`s worth noting that only first mentions were counted to form the campaign sphere network. Prestige is defined structurally, as a candidate`s Twitter handle reception of direct positive choices – in this case, being mentioned by other actors in the campaign sphere. Based on evidence given by De Nooy et al. (2011), I assume that structural prestige scores have some overlap with social prestige.

I find differences on prestige of a candidate according to the electoral systems. Candidates from plurality system countries are in average more popular than candidates from two-round systems. There is also a decrease in popularity in the comparison between the first-round election and the runoff election (see table 3.3).

Table 4.1. Prestige of presidential candidates in Latin American campaign spheres (2012-2015)

	All countries, First or Single Round	Plurality System countries	Two Round System - First Round	Two Round System - Second Round	All countries, after elections
Mean	0.392	0.450	0.371	0.343	0.370
Median	0.402	0.428	0.391	0.333	0.377
Mode	0.363	0.428	0.363	0.314	0.377
SD	0.122	0.136	0.111	0.103	0.165
N of candidates	57	15	42	16	57

Note: Countries with Plurality Systems are Honduras, Mexico, Panama, Paraguay and Venezuela. Countries with Two Round Systems are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala and Uruguay. From those countries, only Bolivia, Dominican Republic and Ecuador didn`t have runoff elections.

4.5 Findings

Again context variables (population.logged and GNI per capita growth) didn`t demonstrate to be significant to models predicting prestige of candidates in Latin American campaign spheres. I also run models without these parameters, which proved to hold still relevant Multiple R-Squared.

The models show that two-round systems have a negative effect on the prestige of candidates in campaign spheres. In another perspective, challengers proved to be more prestigious than incumbents, especially in plurality system countries.

Table 4.2. OLS Estimates predicting Prestige of candidates in Latin American campaign spheres (2012-2015)

	Model 1c All countries, First or Single Round	Model 2c Plurality System countries	Model 3c Two Round System - First Round	Model 4c Two Round System - Second Round	Model 5c All countries, after elections
Intercept	0.726 (0.258)**	0.548 (0.636)	0.615 (0.303)*	0.518 (0.383)	0.085 (0.347)
Party System	-0.008 (0.013)	0.005 (0.074)	-0.007 (0.013)	0.042 (0.022)#	-0.012 (0.017)
Two Round System	-0.091 (0.037)*	---	---	---	-0.088 (0.050)#
Incumbent	-0.098 (0.034)**	-0.191 (0.074)*	-0.070 (0.041)	-0.029 (0.056)	-0.126 (0.050)*
Party Ideology	-0.001 (0.003)	0.006 (0.008)	-0.002 (0.004)	-0.003 (0.006)	-0.004 (0.004)
Population. logged	-0.012 (0.015)	-0.007 (0.031)	-0.010 (0.017)	-0.015 (0.023)	0.026 (0.020)
GNI per capita growth	-0.004 (0.006)	-0.004 (0.008)	-0.007 (0.012)	-0.016 (0.020)	0.006 (0.008)
Elected	---	---	---	---	0.067 (0.050)
Residual standard error	0.1142 on 48 degrees of freedom	0.125 on 9 degrees of freedom	0.1137 on 34 degrees of freedom	0.1016 on 10 degrees of freedom	0.1534 on 47 degrees of freedom
Multiple R-squared	0.238	0.4587	0.095	0.3478	0.2433
N of candidates	55	15	40	16	55

Note: The dependent variable is prestige in campaign sphere networks. Countries with Plurality Systems are Honduras, Mexico, Panama, Paraguay and Venezuela. Countries with Two Round Systems are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala and Uruguay. From those countries, only Bolivia, Dominican Republic and Ecuador didn`t have runoff elections. Cell entries are coefficients with standard errors in parentheses. *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

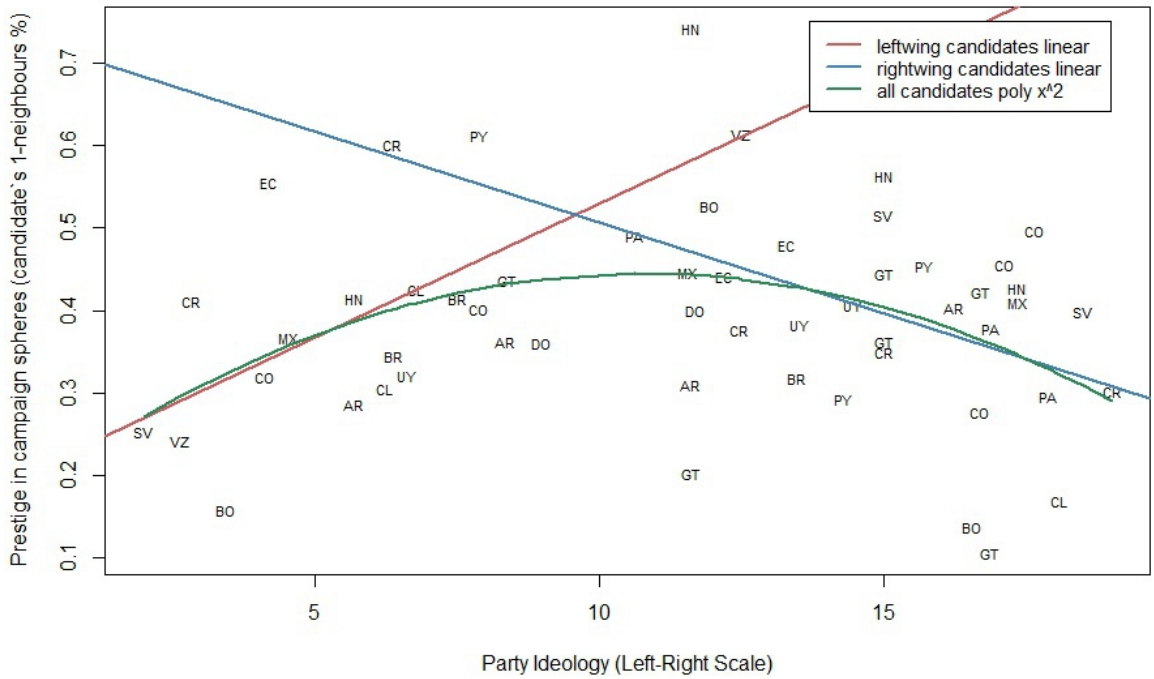
Table 4.3. OLS Estimates predicting Prestige of candidates in Latin American campaign spheres (2012-2015)

	Model 6c All countries, First or Single Round	Model 7c Plurality System countries	Model 8c Two Round System - First Round	Model 9c Two Round System - Second Round	Model 10c All countries, after elections
Intercept	0.515 (0.058)***	0.384 (0.180)*	0.615 (0.303)*	0.274 (0.103)*	0.549 (0.083)***
Party System	-0.007 (0.013)	0.021 (0.061)	-0.007 (0.013)	0.037 (0.020)#	-0.012 (0.017)
Two Round System	-0.084 (0.036)*	---	---	---	-0.095 (0.048)*
Incumbent	-0.098 (0.034)**	-0.186 (0.067)*	-0.070 (0.041)	-0.037 (0.052)	-0.125 (0.050)*
Party Ideology	-0.001 (0.003)	0.006 (0.007)	-0.002 (0.004)	-0.005 (0.005)	-0.005 (0.004)
Population. logged	---	---	---	---	---
GNI per capita growth	---	---	---	---	---
Elected	---	---	---	---	0.065 (0.050)
Residual standard error	0.113 on 50 degrees of freedom	0.1145 on 11 degrees of freedom	0.1137 on 34 degrees of freedom	0.09603 on 12 degrees of freedom	0.1533 on 49 degrees of freedom
Multiple R-squared	0.223	0.445	0.095	0.3006	0.212
N of candidates	55	15	40	16	55

Note: The dependent variable is prestige in campaign sphere networks. Countries with Plurality Systems are Honduras, Mexico, Panama, Paraguay and Venezuela. Countries with Two Round Systems are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala and Uruguay. From those countries, only Bolivia, Dominican Republic and Ecuador didn`t have runoff elections. Cell entries are coefficients with standard errors in parentheses. *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

I also find out that party ideology has a nonlinear relationship with the prestige of a candidate in a campaign sphere (*see graph 3.3*). A quadratic regression shows that centrist candidates have more prestige than candidates located on the left or right extremes. However, there are different advantages on “moving to the center”, depending on party ideology.

Graph 4.1. Party Ideology and Prestige of candidates in Latin American campaign spheres (2012-2015)



Note: Candidates are identified by country codes: AR (Argentina), BO (Bolivia), BR (Brazil), CL (Chile), CO (Colombia), CR (Costa Rica), DO (Dominican Republic), EC (Ecuador), GT (Guatemala), HN (Honduras), MX (Mexico), PA (Panama), PY (Paraguay), SV (El Salvador), UY (Uruguay), VZ (Venezuela).

Comparing linear models with left-wing candidates (Party Ideology < 8) and right-wing candidates (Party Ideology > 12), the former have more gains on prestige when getting closer to the center (see table 3.11). While the coefficient for leftists is 0.033, for the right-wing is only -0.022. Multiple R-Squared was also higher for left-wing candidates (0.242) than for right-wing candidates (0.132).

Table 4.4. Party Ideology predicting Prestige in Latin American campaign spheres (2012-2015)

	Model 11b All candidates, Quadratic Regression	Model 12b Left-wing candidates, Linear regression	Model 13b Right-wing candidates, Linear regression
Intercept	0.184 (0.080)*	0.205 (0.084)*	0.727 (0.175)***
Party Ideology	0.049 (0.017)**	0.033 (0.015)*	-0.022 (0.011)*
Party Ideology Squared	-0.002 (0.001)**	---	---
Residual standard error	0.116 on 52 degrees of freedom	0.112 on 15 degrees of freedom	0.111 on 26 degrees of freedom
Multiple R-squared	0.145	0.242	0.132
N of candidates	55	17	28

Note: Left-wing candidates have Party Ideology < 8. Right-wing candidates have Party Ideology > 12. The dependent variable is prestige of candidates in campaign sphere networks. Cell entries are coefficients with standard errors in parentheses. *p ≤ 0.05 **p ≤ 0.005 ***p ≤ 0.0005

4.6. Conclusions

Though candidates go digital to exercise or increase prestige, their influence over campaign spheres is limited by institutions and party ideology. Candidates in two-round systems and incumbents enjoy less prestige than candidates in plurality systems and challengers, who have more influence over their public. Two-round-systems demonstrated a small negative effect on the prestige of all candidates both on the first or single round (-0.084 coefficient) and in the 30 days after the election (-0.095). The prestige of challengers was also stronger in plurality systems.

As both of these findings contradict the hypotheses, we need more research and theories to explain these relationships. One possibility is that parties on plurality systems in Latin America might not represent as diverse interests as one could expect in theory, but otherwise have a more consensual and homogenous composition.

The greater prestige of challengers, who broke the pattern of incumbency advantage, especially on plurality system countries, is an exciting discover for those who believe in the prospects of digital campaign, and hope for an improvement in political organizations in the changed context for communication.

It`s comforting that, despite a political environment of increased polarization in many Latin American countries, moderate candidates still have more prestige in campaign spheres, in a nonlinear relationship between prestige and party ideology. This finding follows the historic trend of moderation in Latin America after (re)democratization. However, left-wing candidates who "move to the center" have more gains on prestige than right-wing candidates.

Party system doesn't have a significant relationship with prestige in campaign spheres. Context variables (population.logged and GNI per capita growth) were not relevant. President elects did not gain prestige after the election.

5. Conclusions

The findings about the relationship between institutions and campaign spheres draw a pessimistic perspective for digital campaigns. Institutions, party ideology and other contextual variables play a role of limiting or constraining factors against the decentralizing and democratizing forces of new media. This picture is particularly dark to Latin America, where the institutional conditions in most countries demonstrated to have negative effects on participation and prestige. No wonder that, almost ten years after Barack Obama`s first term election, new media innovations and social media campaigns still haven`t played a decisive role to mobilize voters and elect presidents in Latin America. Even though, in another fashion, Latin American countries were highly successful in non-institutional participation, spreading massive protests and social movements empowered by social media throughout Chile, Mexico, Brazil, Venezuela, Guatemala and beyond (Avritzer, 2017; Castells, 2015; Mendonça & Selen, 2015; Muthiah, 2015; Treré, 2015; Valenzuela et al., 2012; Welp, 2015).

If there is no proper institutional environment to answer to the demands of the Latin American public sphere – which are gaining more complexity and scope together with the digital media environment – frustrations are only going to grow, boil and, finally, spill out in more convulsions of social protest and conflict. That`s what I fear the most.

After the democratization – or re-democratization – wave in the 1980s, most Latin American countries experienced social and economic crises, government change and sometimes violence, but always maintained democracy as a value to nourish and blossom. With strong and even considered excessively powerful presidential regimes, must of the Latin American political system relies on the leadership of political elites. But to make these leaders responsive to the population needs, it is necessary to develop an environment of active citizenry.

Electoral campaigns are supposed to promote such an environment, giving accountability, stimulating participation and renewing political elites with the fresh air of the public sphere. That is not what I found analyzing the 2012-2015 election cycle.

There is still a gap between traditional politics and political participation, mining the ground for the advancement of digital campaigns in the region. In this process, new media should increase participation, bringing new people into politics, while also reinforcing traditional ways and patterns of participation. Participation itself might help to develop public policies and, in the long term, the institutions themselves, contributing to the rise of transparency, accountability and the strengthening of democracy. I hope that these findings only represent a picture of the prospects of digital campaigns in the 2012-2015 electoral cycle, and these conditions change in the future.

I am concerned about the reaction of political leaders to the changed media environment. By assessing the Latin America's institution design and the conditions of the ongoing political system, I demonstrate that two-round systems have worse conditions for the digital campaigns. They affect negatively participation (VS) for right-wing candidates.

Plurality systems demonstrated to have a stronger effect on prestige of challengers – evidence that they can provide good conditions for digital media campaigns. But we need more data and harder evidence to prove that plurality systems are better than two-round systems. While left-wing candidates have more participation (VS) in their campaigns when the candidates are incumbents, the same advantage was not perceived by right-wing candidates.

Context variables were relevant for participation (AD), shading more doubts on the conditions for digital campaigns, but didn`t affect participation (VS) or prestige.

I hope that this conclusions and recommendations inspire political leaders, information activists and researchers. Following are some possible topics for researchers that might be interested in analyzing the Latin American campaign spheres data set, or inquiring about other cases:

(1) Brokerage positions within the network are heavily involved in the exchange and flow of information. To analyze diffusion processes, one of the most used concepts in social network analysis is to verify which actors are central, having better access to information and better opportunities to spread information. I assume that informal communication, such as those spread in social media networks, is important to the operation of electoral campaigns, and it does not always coincide with the party's formal structure. Researchers can verify who are these actors, and formulate theories of centrality in campaign spheres.

(2) At least part of the structure of an observed network is random (De Nooy et al., 2011). Random graph models can be used in an exploratory way, fitting different random graph models to the observed network, possibly trying out a range of parameter values. This

is a way of testing hypotheses about network properties that are not part of the random graph model. In model-based inference, statistical network models can tell which network characteristics to expect if the lines are assigned to pairs of vertices according to a random process. As a consequence of randomness, many networks are possible and could have been observed. Models like classic Bernoulli and conditional uniform models, small-world models, and preferential attachment or power-law, scale free models can be used to construct confidence intervals for network properties of campaign spheres.

(3) I found out that there is a difference in participation and other variables in the comparison among first round elections, second round elections and the time after elections. We need research to analyze how the campaign spheres perform in temporal networks, and what are the effects of time events, proximity or distance of elections over social interactions.

(4) Agenda-setting and framing are two of the main topics in political communication. In a comparative approach, researchers can verify what are the processes of agenda-setting and framing under different institutions and contexts, and how they are affected and influenced by the interactions between candidates and other actors in the campaign sphere.

(5) Campaign spheres are not limited to elections, but the same theory and research design can be used to other public policy campaigns held at government time, or even to social movements. There is also the possibility of trying to detect any linkages between electoral campaigns and social movements.

(6) The linkage between political communication and institutions is an open and underdeveloped field to be explored by the scholarship. This research agenda is to be expanded to other countries and regions, and other types of political systems and institutions.

I conveyed this study to Latin America, with a most similar design comparing mostly plurality and two-round systems, but there are more and more diverse electoral systems to be compared. The changed context for communication which is affecting and transforming these systems in different ways makes this an urgent call.

Finally, I hope that this dissertation can be used as a positive example of the possibilities of using social media data in political communication research, especially in comparative politics. I strongly believe that, with the changes brought up by digital media, survey research may play a less dominant role (Murphy et al., 2014). The information revolution that called into existence social media data has also turned the odds against polls, making it more difficult for pollsters to get proper responses to their questions. The more people use and wield social media, and converge their actions, behaviors and identities into digital environments, the more social media data improves. But this technology has also made harder to get access for polls. It`s challenging to improve survey data under these conditions, as this trend will only increase with time.

Meanwhile, social media research may be conducted in conjunction with surveys in an attempt to add an alternative quantitative perspective or a narrative element to traditional survey analysis (Murphy et al., 2014). Of course, social media research offers its own challenges, as validity and generalization, sampling, and differential access to new media. Those are some of the issues that this dissertation intended to deal with, and shall be addressed in future research. Much more questions will come as the social media environment changes over time and the information revolution continues to unfold political and social transformations in Latin America and beyond.

Appendix A – Search terms for campaign spheres in Latin America

Country	Candidate	Search terms
Argentina	Daniel Scioli	(@danielscioli OR #70AñosCumpliendo OR #CirculoCelesteYBlanco OR #CírculoCelesteYBlanco OR #DesarrolloAR OR #EncuentroCelesteYBlanco OR #EncuentroEducación OR #EncuentroPorLaCultura OR #FpV OR #LaVictoriaDeTodos OR #MejorScioli OR #MiVictoria OR #ScioliConBeto OR #ScioliConFantino OR #ScioliConMajul OR #ScioliConMauro OR #ScioliConMirtha OR #ScioliEnA2V OR #ScioliEnAM OR #ScioliEnC5N OR #ScioliEnCrónica OR #ScioliEnIntratables OR #ScioliEnMitre OR #ScioliEnNET OR #ScioliEnTelenoche OR #ScioliPresidente OR #YoVotoAScioli)
Argentina	Mauricio Macri	(@mauriciomacri OR "Plan Belgrano" OR "unir a los argentinos" OR #Cambiamos OR #Cambiemos OR #Esperanza OR #FantinoConMacri OR #ImpuestoALasGanancias OR #LlegóElCambio OR #LunesIntratable OR #MacriConFantino OR #MacriConMajul OR #MacriConMirtha OR #MacriConRial OR #MacriConSusana OR #MacriEnAM OR #MacriEnBendita OR #MacriEnCódigo OR #MacriEnDA OR #MacriEnDesayuno OR #MacriEnTelenoche OR #MacriEnVorterix OR #MacriPresidente OR #MacriVidalEnHoraClave OR #MacriYVidalEnDDM OR #PlanBelgrano OR #PropuestasCambiemos OR #QuieroQueGaneMACRI OR #TerminarConElNarcotráfico OR #UnirALosArgentinos OR #vamosjuntos OR #YoCambio OR #YolovotoaMM)
Argentina	Nicolás del Caño	(@NicolasdelCano OR @Fte_Izquierda OR @izquierdadiario OR #ArtistasConelFIT OR #DelCaño OR #DelCañoBregman2015 OR #DelCañoDebate OR #DelCañoEnLaUBA OR #DelCanoEnOctubre OR #DelCañoEnOctubre OR #DelCañoPresidente OR #ElPresidenteEnTwitterEsDelCaño OR #FITalConcejo OR #FrentedeIzquierda OR #Lista1A OR #Nico2015 OR #RenovarYFortalecer OR #VamosConElFIT OR #VotoADelCaño OR #VotoDelCaño)
Argentina	Sergio Massa	(@SergioMassa OR @MassaPrensa OR #MassaConMajul OR #MassaEnDA OR #MassaEnPlanM OR #MassaConMirtha OR #MassaEnA2V OR #MassaPresidente OR #MassaEnIntratables OR #MassaEnIntrusos OR #YoVotoXMassa OR #MassaEnLosLeuco OR #MassaEnBendita OR #MassaEnDesayuno OR #MassaConMajul OR #MassaConMauro OR #MassaEnMDQ OR #MassaConFantino OR #MassaEnSanJuan OR #MassaDebate OR #MassaEnM1 OR #MassaConLosLeuco OR #MassaEnC5N OR #MassaEnRosario OR #MassaPropuestas OR #MassaEnCordoba OR #MassaEnLaMatanza OR #MassaEnTN OR #MassaEnCaravana OR #MassaEnSanMartin OR #MassaEmpleoYVivienda OR #ElCambioJusto OR #CambioJusto OR #MassaEnConcordia OR #MassaEnElTimon OR #MassaEnPlanM OR

		#MassaEnVarela OR #MassaEnFuerteApache OR #MassaEnCódigoTN OR #MassaEnLaRioja OR #LosMassaEnIntrusos OR #MassaEnSantiago OR #SalarioNoEsGanancia OR "cambio justo")
Bolivia	Evo Morales	(@EvoMPresidente OR @TOJPA OR @GeneracionEvo_ OR @YoVotariaPorEvo OR "Ciudadela del Conocimiento" OR #BoliviaCambiaEvoCumple OR #BoliviaDelFuturo OR #BoliviaVamosBien OR #CierreCampañaMAS OR #ConEvoGanamosTodo OR #ConEvoGanamosTodos OR #ConEvoVamosBien OR #CorazónEnergético OR #Evo OR #EvoEnLaOnu OR #EvoEnVivo OR #EvoMasVivoQueNunca OR #EvoMásVivoQueNunca OR #EvoMorales OR #EvoPresidente OR #EvoSomosTodos OR #GeneraciónEvo OR #GeneracionEvoDespega OR #GeneraciónEvoDespega OR #LaOlaAzul OR #MAS OR #MiVotoEvoAlvaro OR #olaAzuEnVivo OR #OlaAzul OR #OlaAzulEnVivo OR #TodosSomosEvo OR #TsunamiAzul OR #VamosBien OR #YoSoyGeneracionEvo OR #YoSoyGeneraciónEvo OR #YoVoataréPorEvo OR #YoVotaréConEvo OR #YoVotaréPorEvo OR #YoVotariaPorEvo OR #YoVotaríaPorEvo OR DelFuturo)
Bolivia	Jorge Quiroga	(@TutoQuiroga OR @YoSoyTUTO OR @PDCBolivia OR "Bolivia Diferente" OR #BoliviaDiferente OR #ChuquisacaDiferente OR #CostosRecuperables OR #ElAltoDiferente OR #LaPazDiferente OR #OruroDiferente OR #OruroDiferente OR #QuillacolloDiferente OR #RiberaltaDiferente OR #SantaCruzDiferente OR #SeguridadyProgreso OR #TarijaDiferente OR #Tomasa OR #TomasaEnamora OR #TomasaVicepresidenta OR #TomasaYarhui OR #Tuto OR #TutoPresidente OR #TutoQuiroga)
Bolivia	Samuel Doria Medina	(@SDoriaMedina OR @UnidadNacional1 OR @UnidaDemocrata OR "Alternativa a Evo" OR "Alternativa de Unidad" OR "Unidad y Alternativa" OR #2014NoMas OR #LaUnidadEsElCamino OR #SamuelPresidente OR #Unidad OR #Unidad-Demócrata OR #UnidadDemocrata OR #UnidadDemócrata OR #UnidadEsElCamino OR #UnidosGanamosTodos)
Brazil	Aécio Neves	(@AecioNeves OR @Rede45 OR #45 OR #45AecioConfirma OR #Aécio OR #Aecio45 OR #Aécio45 OR #Aecio45Confirma OR #Aecio45PeloBR45IL OR #Aecio45PeloBrasil OR #Aecio45Presidente OR #AécioAcre OR #AécioBomDiaBrasil OR #AECIOdeVirada OR #AécioEmManaus OR #AecioEmTodoBrasil OR #AécioJuazeiroDoNorte OR #AécioManaus OR #AécioMudançaVerdadeira OR #AecioNaCNBB OR #AécioNaCNBB OR #AecioNaGlobo OR #AécioNaRBS OR #AécioNaRecord OR #AécioNaRedeTV OR #AécioNevesOficial OR #AécioNoEstadão OR #AécioNoGlobo OR #AécioNoJornalDaGlobo OR #AecioNoJornalDaGlobo OR #AecioNoSenado OR #AecioPelaMudanca OR #AecioPelaMudança OR #AécioPelaMudança OR #AecioPeloBR45IL OR #AecioPeloBR45sil OR #AécioPeloBR45sil OR #AécioPeloBrasil OR #AecioPresidente OR #aéciopresidente OR #AgoraBrasilAécio45 OR #AgoraEAecio45Confirma OR #AgoraÉAecio45Confirma OR #AgoraÉAecioBrasil OR #AgoraÉAécioBrasil OR #ColigaçãoMudaBrasil OR #DignaIDADE OR #EAecio45Confirma OR #ÉAecio45Confirma OR #EmTodoBrasilAecio45 OR #EquipAN OR #EquipeAécio45 OR #EquipeAN OR #EuSouAecio OR #EuSouAécio OR #EuVotoAecio OR #EuVotoAecio45 OR #EuVotoNoAécio45 OR #EuVotoNoAecio45 OR #FaceToFaceComAécio OR #GrandeEncontro45 OR #MãesdeMinas OR

		#MudaBrasil OR #MudançaDeverdade OR #NordesteForte OR #OndaDaRazão OR #PlanoNordesteForte OR #ProgramaDeGovernoAécio OR #somosaecio OR #SomosAécio OR #SomosAécio45 OR #SomosAecio45 OR #SomosAécioPresidente OR #SomosMaisAecio OR #souAécio OR #SouMaisAecio OR #VamosAgir OR #VemBrasil OR #VemPraRua25deOutubro OR #virada45 OR #VotoAecioPeloBR45IL OR #VouVotarAecio45 OR #VouVotarAécio45)
Brazil	Dilma Rousseff	(@dilmabr OR @MudaMais OR @blogplanalto OR @LulapeloBrasil OR #Dilma13MaisNordeste OR #Dilma13Bandalarga OR #DilmaNaONU OR #maismudancamaisfuturo OR #maismudançamaisfuturo OR #13Motivos OR #13rasilTodoComDilma OR #BandaLargaParaTodos OR #BrasildaMudança OR #caminhodeoportunidades OR #ColetivaDilma OR #Conae2014 OR #CopadaIntegração OR #CopaDasCopas OR #Deseperodaveja OR #DesesperodaVeja OR #Dia5Sou13DeNovo OR #Dilma13 OR #Dilma13DeNovo OR #Dilma13EmBH OR #Dilma13emJales OR #Dilma13emTodoBrasil OR #Dilma13emTodooBrasil OR #Dilma13IdeiasNova OR #Dilma13IdeiasNovas OR #Dilma13IdeiasNovas OR #Dilma13MaisBrasil OR #Dilma13NaContag OR #Dilma13PraVencer OR #DilmaComPovo OR #DilmaDeNovo OR #DilmaDoMundo OR #DilmaEmAlta OR #DilmaePadilha13 OR #Dilmais4anos OR #DilMaisMinas OR #DilmaNaBand OR #DilmaNaRecord OR #DILMANATV OR #DilmaNoG20 OR #DilmaNoJN OR #DilmaNoRádio OR #DilmaNoSBT OR #DilmaNoSBT OR #DilmaNovamente OR #DilmaPraMudarMinas OR #DilmaRousseff OR #Dilminha13 OR #EstudantesComDilma OR #FelizComDilma13 OR #FimDeSemanaDilmais OR #GovernoNovoIdeiasNovas OR #JuntosComDilma13 OR #JuventudeComDilma13 OR #LulaComPadilha OR #LulaeDilma13Neles OR #LulaeDilma13noPará OR #LulaeDilmaNoABC OR #MaisAmor13 OR #MaisAmorMaisBrasil OR #MaisEspecialidades OR #MaisFuturoMaisMudanças OR #MaisMudançasMais OR #MaisMudancasMaisFuturo OR #MaisMudançasMaisFuturo OR #MelhorComDilma OR #MelhorComDilma13 OR #MenosODIOmaisNordeste OR #MenosÓDIOMaisNordeste OR #MilitanciaPeloBrasil13 OR #MilitânciaPeloBrasil13 OR #OcupeoFacebook OR #OMundoTodonoBrasil OR #PeriferiaComDilma OR #Pessimildo OR #ProfessoresComDilma OR #PSDBsecouSP OR #QueroDilmaTreze OR #RedeCulturaComDilma OR #Rousselfies OR #SemanaDaDilma OR #SomosTodosDilma OR #TodosComDilma OR #TrabalhadoresComDilma OR #TVDilma OR #ViverSemLimite OR #VouComDilma13 OR MudaMais)
Brazil	Marina Silva	(@silva_marina OR @eduardocampos40 OR @apoio40 OR #Equipe40 OR #SouMarina40 OR #BrasilMarina40 OR #VamosJuntosComMarina OR #CoragemPraMudar OR #EuVotoMarina40 OR #MarinaEmPOA OR #MarinaEmSP OR #EduardoeMarina40 OR #MarinaEmRecife OR #EquipeMarina OR #JuntosPeloBrasil OR #Marina40 OR #EuVoteiMarina40 OR #40Neles OR #MarinaSempre OR #Votei40 OR #naovamosdesistirdobrasil OR #ConvencaoPSB OR #AgendaMarina OR #BrasiliaSustentavel OR #novapolitica OR #CoragemParaMudar OR #MudandoBrasil OR #EduardoeMarina OR #Vote40 OR #RecicleAPolitica OR #Apoio40 OR #MarinanewPresidentadoBrasil OR #NãoVamosDesistirDoBrasil OR #40 OR #MARINA OR

		#MarinaDeVerdade OR #MarinaSilva OR #MarinarVouEu OR #meuvotoé40 OR #CoqueTáNaModa OR #MarinaEmParaisópolis OR #TV40 OR #JuntosComMarina OR #PernambucoComMarina OR #EuVotoMarina OR #MinasComMarina OR #MarinaemMG OR #MarinaEmVarginha OR #MarinaNaBaixada OR #MarinaNaCufa OR #MarinanoBomdiaBrasil OR #EquipeBeto OR #MarinaComTrabalhadores OR #MarinaEmFlorianópolis OR #MarinaEmCuritiba OR #MarinaEmColetiva OR #DiálogosConectados OR #MarinaEmManaus OR #MarinarEuVou OR #MarinaNaAmazônia OR #MarinaNaBahia OR #MarinaEmSalvador OR #CampinasComMarina OR #FaceToFAceComMarina OR #MarinaNoEspíritoSanto OR #MarinaEBeto OR #MarinaCNBB OR #MarinaNoEndeavor OR #MarinaDeVerdade OR #MarinaÉcultura OR #MarinaEmBrasília OR #MarinaPresidente OR #MarinaEmJoãoPessoa OR #MarinaEmFortaleza OR #ProgramaTV40 OR #Desafio40 OR #SaúdeÉ40 OR #Marina7deSetembro OR #Marina7deSetemebro OR #É40 OR #EncontroJuventudeRio OR #CoqueTaNaModa OR #JuventudeComCoragem OR #ProgramaDeGoverno40 OR #MarinaNoJN OR #EuEMarina40 OR #MarinaNaTV40 OR #EduardoNoJN OR #40Razões OR #Clique40 OR #UnidosPeloBrasil OR #EduardoÉPasseLivre OR #CoragemPraEscolheroNovo OR #Caminhada40 OR #Euvoto40 OR #EduarsoeMarina40 OR #40razoes OR #EduardoMarina40)
Chile	Evelyn Matthei	(@evelynmatthei OR @EquipoEvelyn OR @Evelyn_2014 OR @jovenesxevelyn OR #1mas1es7 OR #1más1es7 OR #7compromisos OR #ApoderadosPorEvelyn OR #CaravanaPorEvelyn OR #ChileAvanzaConLasRegiones OR #ChileMasJusto OR #ChileMásJusto OR #CompromisoUn7ParaChile OR #Este17Vota7 OR #Evelyn OR #evelyn2014 OR #EvelynEsUn7ParaChile OR #EvelynGana OR #EvelynMatthei OR #EvelynPresidenta OR #EvelynUn7ParaChile OR #FelizCumpleañosEvelyn OR #FranjaDigitalEvelyn OR #FranjaJovenxEvelyn OR #FuerzaJovenConEvelyn OR #ganemosjuntos OR #jovenespormattei OR #JóvenesxEvelyn OR #JovenesxMatthei OR #JuégatelaxEvelyn OR #JuntemosChile OR #Matthei2014 OR #MattheiCandidata OR #PaDelante OR #PintaPorEvelyn OR #PorUnChileMásJusto OR #RazonesParaUn7 OR #SiSePuede OR #somosalianza OR #TodosConEvelyn OR #TuFotoConEvelyn OR #Un7ParaChile OR #Un7ParaMagallanes OR #UnChileMasJusto OR #unsloganparalaEvelyn OR #VamosEvelyn OR #VotoEvelyn OR #VoyConEvelyn)
Chile	Michelle Bachelet	(@MichelleConce OR @ComandoMichelle OR @MichelleBachelet OR @PrensaMichelle OR #50MedidasMB OR #BacheletCandidata OR #BacheletLover OR #BacheletPresidenta OR #ChileDeTodos? OR #CulturaDeTodos OR #DebateARCHI OR #DebateMB OR #DeporteDeTodos OR #EducacionDeTodos OR #EducaciónDeVerdad OR #ElInformanteMB OR #FelicidadesMB OR #FranjaMB OR #LaFotoDeTodos OR #Michelle OR #MichellePresidenta OR #NuevaConstitucion OR #NuevaConstitución OR #NuevaMayoria OR #NuevaMayoría OR #PresidentaBachelet OR #ProgramaMB OR #ReformaTributaria OR #SeguridadParaTodos OR #SomosNuevaMayoria? OR #?TodosConMichelle? OR ??#TodosDebemosVotar OR #VivaChileyMB OR #YoVoto6 OR #YoVotoMichelle)

Chile	Franco Parisi	(@Fr_parisi OR "poder de la gente" OR #caravanasparisi OR #ChileElPaisDonde OR #ChileelPaísDonde OR #EfectoBoomerang OR #ElEfectoBoomerang OR #ElPoderDeLaGente OR #EnRegionesNecesitamos OR #FelizCumpleanosFrancoParisi OR #FelizCumpleañosFrancoParisi OR #FrancoParisi OR #francorespondeenhora20 OR #FranjaDeParisi OR #GRANDEPARISI OR #LaFranjaDeParisi OR #MasRegionalismo OR #ParisASegundaVuelta OR #ParisEstamosContigo OR #Parisi OR #Parisi2014 OR #Parisi2018 OR #PARISIa2VUELTA OR #ParisiaASegundaVuelta OR #PARISIALALAMONEDA OR #ParisiAlaMineda OR #PARISIALAMOMEDA OR #PARISIALAMONEA OR #PARISIALAMONEDA OR #ParisiALaSegundaVuelta OR #ParisiArmy OR #ParisiASegudaVuelta OR #ParisiASegunaVuelta OR #PARISIASEGUND OR #ParisiASegundaVuelta OR #parisibilizate OR #ParisiCandidato OR #ParisiDebeGanarPorUnChileLimpio OR #ParisieEstamosContigo OR #ParisiElPoderDeLaGente OR #ParisiEnCarolina OR #ParisienCNN OR #ParisienMV OR #ParisiENSLB OR #ParisiEsMiCandidato OR #parisiestaensegundavuelta OR #ParisiEstamosContigo OR #PARISIESTSAMOSCONTIGO OR #ParisiGanaLaElección OR #Parisiganasegundavuelta OR #PARISILAMONEDA OR #ParisiMagallanes OR #ParisiMetaCumplida OR #ParisiMV OR #PARISINUEVADERECHAVIG OR #parisiotravezvigilantes OR #ParisiParaPresidente OR #ParisiPdt2014 OR #ParisiPdte OR #ParisiPorLosPalos OR #ParisiPorUnChileDeVerdad OR #ParisiPres1dente OR #ParisiPresdiente OR #ParisiPresidente OR #ParisiPuedaGanarLaElección OR #ParisiPuedeGanarLaEleccion OR #ParisiPuedeGanarLaElección OR #ParisiResponde OR #ParisiRespondeAmatthei OR #Parisirespondeenhora20 OR #ParisiRumboALaMoneda OR #ParisiSegundaVuelta OR #ParisiSiPuedeGanarLaEleccion OR #ParisiSprite OR #ParisiSumaySuma OR #ParisiTeVe OR #ParisiUCEN OR #porunchilefranco OR #PorUnNuevoComienzo OR #SoyFranco OR #SoyParisi OR #Vamosa2VueltaConFrancoParisi OR #VamosFranco OR #Vota1 OR #VotaInteligente OR #votainteligentevotaparisi OR #VotaParisi OR #votoporparisi OR #VoyPorParisi OR #YoMeQuemePorParisi OR #yosoyfranco OR #YoVotoParisi)
Chile	Marco Enriquez-Ominami	(@marcoporchile OR @YoProclamoMarco OR @LosPROgresistas OR @TodosConMarco OR #ChileCambia OR #ChileGanaConMarco OR #conmarcollegamosalamonedaenmarzo OR #DemocraciaEconomica OR #DemocraciaEconómica OR #ElDomingoMarco4 OR #ElDomingoYoMarco4 OR #En10DíasChileCambia OR #En11DíasChileCambia OR #En12DíasChileCambia OR #En13DíasChileCambia OR #En16DíasChileCambia OR #En18DíasChileCambia OR #En23DíasChileCambia OR #En24DíasChileCambia OR #En25DíasChileCambia OR #En26DíasChileCambia OR #En27DíasChileCambia OR #En32DíasChileCambia OR #En35DíasChileCambia OR #En36DíasChileCambia OR #En37DíasChileCambia OR #En42DíasChileCambia OR #En43DíasChileCambia OR #En44DíasChileCambia OR #En46DíasChileCambia OR #En48DíasChileCambia OR #En4DíasChileCambia OR #En50DíasChileCambia OR #En51DíasChileCambia OR

		#En5DíasChileCambia OR #EnNoviembreYoMarco4 OR #HoyMarco4 OR #JovenesConMarco OR #LosRiosConMarco OR #mañanaChileCambia OR #MarcaPorMarco OR #Marcatuvoto OR #Marco OR #Marco2014 OR #Marco2018 OR #Marco4 OR #Marco4Porque OR #MARCOALAMONEDA OR #MarcoALaMonenda OR #Marcoasegundavuelta OR #MarcoCandidato OR #MarcoCuatro OR #MarcoEnAsambleaConstituyente OR #MarcoEnCarolina OR #MarcoEncooperativa OR #MarcoEnriquezOminami OR #MarcoEnríquezOminami OR #MarcoLoDijo OR #MarcoPorAC OR #MarcoPorAsambleaConstituyente OR #MarcoPorAsamnleaConstituyente OR #marcoporchile OR #MarcoPorLaDespenalizacion OR #MarcoPorLaDespenalización OR #MarcoPorLaEducacion OR #MarcoPorNuevaConstitucion OR #MarcoPorNuevaConstitución OR #MarcoPorPensiones OR #MarcoPorTi OR #marcoportí OR #MarcoPresidente OR #MarcoPROpone OR #MarcoResponde OR #marcosAlaMoneda OR #marcospresidente OR #MarcoUCEN OR #MarcoxChile2014 OR #MarcoxMarco OR #MarcoxTí OR #MarcoyKaren2014 OR #MEO OR #MEO2014 OR #MEOenCarolina OR #MeoRespondeEnH20 OR #MeoRespondeEnhora20 OR #MetroaMetroConMarco OR #MujeresPorMarco OR #MujeresProgresistas OR #NuevaPilleria OR #NuevaPillerìa OR #PorUnNuevoChile OR #SiNosotrosQueremosChileCambia OR #SiQuieresChileCambia OR #SiTtQuieresChileCambia OR #SiTuQuiereChileCambia OR #SiTúQuieredChileCambia OR #SiTúQuieresChileCabia OR #SiTuQuieresChileCambia OR #SiTúQuieresChileCambia OR #sitùquieresChilecambia OR #SituquieresChilecambio OR #SiTúQuieresChileGana OR #SiTuQuietesChilecambia OR #SomosProgresistasPorque OR #Vota4 OR #Voto4 OR #YoMarco OR #YoMarco4 OR #YoMarco4Porque OR #YoMarcoAC OR #YoMarcoMiVoto OR #YoMarcoPorMarco OR #YoMarcoPorTi OR #YoMarcoporTí OR #YoMarcoxMarco OR #YoProclamoMarco OR #YoVoté4 OR #YoVoto4 OR #Yovotomarco OR #YoVotoPorMarco OR SiTúQuieresChileCambia)
Colombia	Clara López Obregón	(@ClaraLopezObre OR @ClaraPresidenta OR "por un buen camino" OR #BuenCamino OR #ClaraLopezEsEducación OR #ClaraLopezEsEmpleo OR #ClaraLopezPresidenta OR #ClaraLópezPresidenta OR #ClaraLopezPresidente OR #ClaraPorElAgro OR #ClaraPresidenta OR #ClaraPresidente OR #ClaraResponde OR #ColombiaLaTieneClara OR #ColombiaMereceLoMejor OR #DebateClaramente OR #DebatoClaramente OR #GanóLaPaz OR #LaAlternativaesClara OR #LaIndustriaEstaQuebrada OR #LaTengoClara OR #LosJóvenesLaTenemosClara OR #PorLaRestauraciónMoral OR #PorUnBuenCamino OR #PorUnCamino OR #UnaClaraPropuesta OR #VoteClaraLopez OR #VotoClara OR #VotoClaraEnElExterior OR #VotoClaraLopez OR #VotoClaraLópez OR #VotoPorClaraLopez OR #VotoPorLaPaz OR #YoVotoClaraLopez)
Colombia	Enrique Peñalosa	(@EnriquePenalosa OR @ConPenalosa OR #JuntosPodemos OR #Podemos OR #PeñalosaPresidente OR #PodemosCambiarColombiaYA OR #PeñalosaEsLaOpción OR #PenalosaEsLaOpcion OR #IsabelSegovia OR #PromesasyPropuestas OR #pedaleamosPorColombia OR #nomasdelomismo OR #HagámosloJuntos OR #Verde110 OR #ConPeñalosaPodemos)

Colombia	Juan Manuel Santos	(@JuanManSantos OR #SantosPresidente OR #ConPazHaremosMas OR #DiálogosDeGestión OR #EncuentrosRegionales OR #SantosPropone OR #Matriculatón OR #LoBuenoDeColombia OR #ConPazHaremosMás)
Colombia	Marta Lucía Ramírez	(@mluciaramirez OR @soyconservador OR #CúcutaConMartaLuciaRamirez OR #GuerraContraLaCorrupción OR #HayConQue OR #MartaLuciapresidenta OR #MartaLucíaPresidenta OR #MartaLuciaPresidente OR #MarthaLuciaPresidente OR #MLRamirezResponde OR #MLRamírezResponde OR #MLRpresidenta OR #mlucialsv OR #MLuciaResponde OR #MLucíaResponde OR #NoMásCorrpución OR #NoMasCorrupcion OR #NoMasCorrupción OR #NoMásCorrupción OR #NoMásCorupción OR #NoMásMinas OR #NoMasNinosEnLaGuerra OR #NoMasNiñosEnLaGuerra OR #NoMásNiñosEnLaGuerra OR #orgullosamenteconservador OR #PazConCondiciones OR #PazSinImpunidad OR #presidentemlramirez OR #SíHayConQien OR #SiHayConQuien OR #SíHayConQuien OR #SíHayConQuien OR #SíHayConQuién OR #sihayuconquien OR #SinCorrupción OR #VotoConservador OR #VotoporMartaLucia OR #VotoPorMartaLucía OR #YoMeLlamoMartaRamirez OR #YoPropongo OR #YoQuieroMujerPresidenta OR #YoSoyConservador)
Colombia	Óscar Iván Zuluaga	(@OIZuluaga OR @cedemocratico OR @AlvaroUribeVel OR @JovnesOIZuluaga OR #ActívateConZuluaga OR #ApoyoaZuluaga OR #cedemocratico OR #centrodemocratico OR #CentroDemocrático OR #CmunicadOIZ OR #ColombiaDistinta OR #ColombianosConOIZ OR #ColombianosConZuluaga OR #ComunicadOIZ OR #ComunicadoOIZ OR #ConservadoresConZuluaga OR #EstoyComprometidoOIZ OR #EstoyConUribeYCentroDemocrático OR #GanaZuluagaGanaColombia OR #jovenesconOIZ OR #JovenesConZuluaga OR #JóvenesOIZ OR #LaVerdadConZuluaga OR #MeLaJuegoPorZuluaga OR #mujeresconzuluaga OR #OIZDelLadoDe OR #OIZEncali OR #OIZPresidente OR #OIZTieneMiVoto OR #orgullosademicandidatoOIZ OR #Oscareseducacion OR #OscarIvanPresidente OR #oscarivanzuluagapresidente OR #OscarIvanZuluagaPresidente2014 OR #PensarEnGrande OR #PorelCesar OR #PorelTolima OR #PorlaPazVotoZuluaga OR #PorUnaColombiaDistinta OR #PreguntéleaZuluaga OR #propuestaeducativaOIZ OR #RecuperalElRumbo OR #RecuperarElRumb OR #RecuperarElRumbo OR #RetomarElrumbo OR #soyOIZ OR #TransportadoresConZuluaga OR #UnaColombiaDistinta OR #UnaColombianDistinta OR #VamosPorElCambio OR #VotaCentroDemocratico OR #VotoCentroDemocrático OR #VotoPorZulcuaga OR #VotoPorZuluaga OR #YaVotePorZuluaga OR #YaVotéPorZuluaga OR #YoApoyaZuluaga OR #YoApoyoaZualuaga OR #YoApoyoaZuluaga OR #yovotoporoscarivanzuluaga OR #YoVotoPorZuluaga OR #YoVotoVorZuluaga OR #Z OR #Zuluaga OR #ZuluagaEnCala OR #ZuluagaEnDebate OR #ZuluagaEnUAndes OR #ZuluagaEsCololmbia OR #ZuluagaEsColombia OR #ZuluagaExplica OR #ZuluagaGanaColombiaGana OR #ZuluagaMiPresidente OR #ZuluagaPresidente OR #ZuluagaResponde OR #ZuluagaSeráMejorPresidente OR #ZuluagaUAndes OR "Colombia distinta")
Costa Rica	Johnny Araya	(@Johnny_Araya OR @plncr OR @CRica_Limpia OR "Costa Rica

		Solidaria" OR #asambleapln OR #cambioresponsable OR #conjohnny OR #contráteme OR #CostaRicadetodos OR #ElCambioResponble OR #ElCambioRespondable OR #ElCambioResponsable OR #elcambioresposable OR #estiempodeconstruir OR #estiempodeconstuir OR #johhny2014 OR #johnny OR #Johnny2014 OR #johnnyaraya OR #johnnyArayaPRESIDENTE OR #JohnnyPresidente OR #JonnyPresidente OR #LaCostaRicadeTodos OR #liberacionistasdecorazon OR #losmismosdesiempre OR #PLN OR #Propuestaagricultura OR #propuestaambiental OR #propuestadeportiva OR #propuestaLosChiles OR #Propuestapyme OR #PropuestaUpala OR #PropuestAUpala OR #PropuestaZonaNorte OR #SoyPLN OR #unnuevogobierno OR #votoporlademocracia OR #yosícreo)
Costa Rica	José María Villalta	(@josemvillalta OR @FrenteAmplio OR @juventudfa OR "vamos con esperanza" OR #ConstruyamoslaEsperanza OR #FA OR #FrenteAMPLIO OR #GobiernoAbierto OR #GobiernoFrenteAmplio OR #HayESPERANZA OR #OrgullosamenteFA OR #PlanVillalta2014 OR #propuestasFA OR #SiHayPorQuienVotar OR #SiHayPorQuiénVotar OR #SíHayPorQuienVotar OR #SíHayPorQuiénVotar OR #VamosConEsperanza OR #VillaltaAmigoElPuebloEstáContigo OR #VillaltaPresidente OR #VillatalPresidente OR #YoVoyConElFA)
Costa Rica	Luis Guillermo Solís	(@luisguillermosr OR "Con Costa Rica NO se juega" OR #AsambleaPAC OR #AvenidazoPAC OR #ConCostaRicaNoSeJuega OR #ConCRnosejuega OR #ElMejorEquipo OR #HerediaEsPAC OR #juventudPAC OR #LuisGuillermo OR #LuisGuillermoPresidente OR #LuisGuillermoSolis OR #LuisGuillermoSolís OR #LuisGuillermoSolisPresidente OR #luisguillermosr OR #MiVotoEsPAC OR #PAC OR #PactoAmbiental OR #PlanRescate OR #SaliAVotar OR #SalíAVotar OR #Solís OR #Solispresidente OR #SolísPresidente OR #SomosOptimistas OR #SomosPAC OR #SoyOptimista OR #TuVotoesPac OR #UnIndecisoMenos OR #YoSoyOptimista OR #YoSoyUnaOptimista OR #YoSoyUnOptimista OR #YovotoPAC)
Costa Rica	Otto Guevara Guth	(@OttoGuevaraG OR @OttoPresidente OR PML OR #ML OR "Movimiento Libertario" OR "viraliza la libertad" OR #PrincipiosLibertarios OR #liberalismo OR #Libertad OR #soylibertario OR #soylibertaria OR #soylibertari@ OR #OttoPresidente OR #YoSiVOTTO OR #YaEsHora OR #PropuestasdeOtto)
Costa Rica	Rodolfo Piza	(@pizarodolfo OR "El Camino Costarricense" OR "justicia social" OR #ElCaminoCR OR #FrasesdePiza OR #LogrosSocialcristianos OR #MiVotoEsPiza OR #mivotopusc OR #OrgulloSocialcristiano OR #Piza OR #PizaEsElMejor OR #PizaPresidente OR #PUSC OR #Socialcristiana OR #Unliderdiferente OR #unlíderdiferente OR #UnPresidenteSerio OR #VamosPiza OR #VotePorElMejor OR #votopiza OR #VotoPUSC)
Ecuador	Guillermo Lasso	(@LassoGuillermo OR @CreoEcuador OR @jovenesCREO OR "Ecuador de Esperanza" OR "Ecuador de Oportunidades" OR "Ecuador del dialogo" OR "Ecuador libre" OR "Ya estamos en segunda vuelta" OR #CREO OR #CREO21 OR #creoecuador OR #CreoEmprende OR #EcuadorInmediato OR #EcuadorNecesitaSaber OR #ElEcuadorQueYaViene OR #EventoMujeresCREO OR #ganaLasso OR #guillermolasso OR #LassoPresidente OR #LassoPresidente OR #Lista21 OR #NuevoEcuador OR #OtroEcuador OR #OtroEcuadorEsPosible OR

		#OtroEcuadorQueSiEsPosible OR #OtroEcuadorQueSíEsPosible OR #OtroEcuadorSeaPosible OR #OtroEcuadorSiEsPosible OR #OtroEcuadorSíEsPosible OR #Plan21 OR #Propuesta10 OR #Propuesta11 OR #Propuesta12 OR #Propuesta13 OR #Propuesta14 OR #Propuesta15 OR #Propuesta16 OR #Propuesta17 OR #Propuesta18 OR #Propuesta19 OR #Propuesta20 OR #Propuesta21 OR #propuesta22 OR #Propuesta23 OR #Propuesta24 OR #Propuesta25 OR #Propuesta26 OR #Propuesta27 OR #Propuesta28 OR #Propuesta29 OR #Propuesta3 OR #Propuesta30 OR #Propuesta31 OR #Propuesta32 OR #Propuesta33 OR #Propuesta34 OR #Propuesta35 OR #Propuesta36 OR #Propuesta37 OR #Propuesta38 OR #Propuesta39 OR #Propuesta40 OR #Propuesta41 OR #Propuesta42 OR #Propuesta43 OR #Propuesta45 OR #Propuesta5 OR #Propuesta6 OR #Propuesta7 OR #Propuesta8 OR #Propuesta9 OR #UnidosporelEcuador OR #VivirSinMiedoVivirConEsperanza OR #VotaTodo21 OR #YaEstamosEnSegundaVuelta OR #YaVieneElEcuadordelaSeguridad OR #YaVieneElNuevoEcuador OR #YaVieneElOtroEcuador OR #YavienelOtroEcuador OR #YaVieneOtroEcuador OR #YoCREO OR #YOSICREO OR #YoSíCreo OR #YoSiTeCreoLasso OR #YoVotePorLasso OR #yovotoporLasso)
Ecuador	Lucio Gutiérrez	(@LucioGutierrez3 OR #votatodo3 OR #conlafuerzadelpueblo OR #LucioPresidente OR #porunvototransparente OR #PSP OR #PSP3 OR #tevoyaganarcorrea OR #todo3 OR #Todo3 OR #UnealProgreso OR #UneteAlProgreso OR #ÙneteAlProgreso OR #unetexelprogreso OR #UNMEJORECUADOR OR #vota3 OR #votatoda3 OR lafuerzadelpueblo OR "Progreso y Paz" OR "Únete al Progreso" OR "Únete al PROGRESO" OR "vota por tu futuro" OR "vota todo 3")
Ecuador	Rafael Correa	(@MashiRafael OR todito35 OR "todito 35" OR "6 años de revolución" OR "6 años de Revolución" OR "Revolución en Democracia" OR yatenemospresidente OR "Ya tenemos Presidente" OR "ya tenemos presidente" OR "Ya tenemos presidente" OR "Tenemos a Rafael" OR "escribes la revolución" OR "escribes la Revolución" OR #YaTenemosPresidente OR "Patria Grande" OR "Avanzamos Patria" OR "hasta la victoria siempre" OR "Patria para siempre")
El Salvador	Norman Quijano	(@norman_quijano OR @ARENAOFICIAL OR @QuijanoLiss OR @MiPlanPais OR "cambio de verdad" OR "Primero El Salvador" OR "recuperar El Salvador" OR #Arena OR #DedoNacionalista OR #DedosNacionalistas OR #Destino5500 OR #EresUnoDeLosNuestros OR #EstamosConNorman OR #JuntosRecuperarElSalvador OR #JuntosRecuperaremosElSalvador OR #JuntosVamosARecuperarAElSalvador OR #JuntosVamosaRecuperarElSalvador OR #NormanALaPrimera OR #NormanEnCNN OR #NormanEnVivo OR #NormanEscucha OR #NormanLive OR #NormanPresidente OR #NormanYRené OR #NQ OR #NQJayaque OR #NQSanMatías OR #Plan100Días OR #PlanPais OR #PlanPaís OR #PorqueJuntosVamosArecuperarElSalvador OR #PorUnMejorElSalvador OR #PresentePorLaPatria OR #PXLP OR #Soluciones100Dias OR #Soluciones100Días OR #SomosLaEsperanza OR #SúmateAlFuturo OR #TodosSomosNorman OR #TrabajemosJuntosPorUnMejorElSalvador OR #TriunfoNacionalista OR #VamosARecuperaraElSalvador OR #VamosaRecuperarElSalvador OR #VotaArena OR #VotaNorman OR #VotaPorARENA OR #VotaPorNorman

		OR #VotaPorSeguridad OR #VotaPorSeguridad OR #VotaXARENA OR #VotaXNorman OR #VotenArena OR #votonacionalista OR #VotoPorArena OR #VotoPorNorman OR #VotoXARENA OR #VotoXNorman OR #YoCreoEnNorman OR #YoMeSumoAlFuturo OR #YoVotoPorNormán OR #YoVotoXARENA OR #YoVotoXNorman OR #YoVotoXNormann)
El Salvador	Sánchez Cerén	(@sanchezceren OR @oscarortizsv OR @fmlnoficial OR @paisquequierosv OR @dialogodepais OR #Adelante OR #AdelanteElSalvador OR #BuenVivir OR #CambiosDeVerdad OR #CaravanaEsperanza OR #CaravanaFMLN OR #CarvanaFMLN OR #CiudadJoven OR #ConvencionFMLN OR #ConvenciónFMLN OR #ConvenciónNacionalFMLN OR #CorazónDePueblo OR #ElBuenVivir OR #ElSalvadorAdelante OR #ElSalvadorQueQeremos OR #ElSalvadorQueQueremos OR #FMLN OR #GobiernoFMLN OR #JovenFMLN OR #juventudfmln OR #PlataformaElCambio OR #PorElSalvadorQueQueremos OR #porgramaFMLN OR #PresidenteFunes OR #PrimeraVueltaFMLN OR #ProgamaFMLN OR #ProgramaFMLN OR #SomosMás OR #SomosUno OR #SoyFMLN OR #vamosAdelante OR #VamosAdelanteFMLN OR #VictoriaFMLN OR #VictoriaFMLN9M OR #VotaFMLN OR #VotoFMLN OR #YoSoyFMLN OR #YoSoyReal OR #YoVotoFMLN OR #YoVoyAdelante)
El Salvador	Tony Saca	(@tonysacaoficial OR @PanchoLainez OR @PaisEnUnidad OR "Nueva Agenda Social" OR #AvanzaElSalvador OR #avanzaJOVEN OR #AvanzaMujer OR #bancodelaGENTE OR #CasasUnidad OR #CasaUnidad OR #ciudadMUJER OR #crediJOVEN OR #CrediJoven OR #crediMUJER OR #deporteNOCTURNO OR #elsalvadorDIGITAL OR #ElSalvadorEnPrimerLugar OR #guarderíasTERNURA OR #medicamentoSEGURO OR #MiPrimerEmpleo OR #OportUNIDAD OR #OportUNIDADes OR #OportUNIIDADes OR #PLAN2021 OR #primerEMPLEO OR #rallyUNIDAD OR #segundaOportUNIDAD OR #segurodeCOSECHA OR #TonyEnSegundaVuelta OR #tonyganara OR #TonyPresidente OR #TonySaca OR #TonySacaEsUnidad OR #TonyVaAGanar OR #TuEnPrimerLugar OR #UNIDAD OR #VamosTony OR #votandoxUNIDAD OR #VotarePorTonySaca OR #VotarePorUNIDAD OR #votarXUNIDAD OR #votaUNIDAD OR #VotaXunaOportUNIDAD OR #votaxUNIDAD OR #votemosXunidad OR #VotoSeguroPorUnidad OR #votounidad OR #YoVotoPorUnidad OR #YoVotoXunidad)
Guatemala	Alejandro Giammattei	(@DrGiammattei OR #FuerzaGuatemala OR #HastaAquiLlegasteOtto OR #TenemosEsperanzas)
Guatemala	Jimmy Morales	(@jimmymoralesgt OR @JimmyPorGuate OR #GuatemalaYaDecidió OR #jimmy OR #JimmyCreoEnVos OR #JimmyEnATD OR #JimmyEnIzabal OR #JimmyEnSuchi OR #JimmyEnTelevisa OR #Jimmyestamoslistos OR #Jimmymorales OR #JimmyMoralesPresidente OR #jimmypresidente OR #JuntosPorGuate OR #MiConsejoParaJimmyEs OR #Nicorrupto OR #Niladron OR #NosotrasSomosTuPublicidad OR #VotaFCNNACION OR #votointeligente OR #YoSoyTuPublicidad)
Guatemala	Lizardo Sosa	(@lizarsosa OR @mariogarcialara OR @TODOSXGT OR "gobierno de transición" OR #CambiemosGuate OR #CambiemosGuatemalaYa OR #CambiemosGuateYa OR #debateaggtodos OR #ElPuebloManda OR

		#ForoAggTodos OR #GiraTodos OR #GobiernodeTransicion OR #GobiernodeTransición OR #MarioGarciaLara OR #RescatarGuatemala OR #RescatemosGuatelama OR #RescatemosGuatemala OR #Todos)
Guatemala	Mario David García Velásquez	(@Dr_MDGarcia OR @ppatriota OR "Cero Privilegios" OR #DestinoMarioDavid)
Guatemala	Manuel Baldizón	(@ManuelBaldizon OR @PuebloLider OR "le toca ao pueblo" OR #BaldizonEnGuastatoya OR #BaldizonPresidente OR #BaldizónPresidente OR #BaldizónSiTeToca OR #EsTiempoDeGuate OR #JuventudLider OR #LeToca OR #LeTocaACobán OR #LeTocaAEscuintla OR #LeTocaAGuate OR #LeTocaAGuatemala OR #LeTocaAlPueblo OR #LeTocaAPeten OR #LeTocaASalama OR #LeTocaASanLuisPeten OR #LeTocaASolola OR #PreguntaleABaldizon OR #SiLeToca OR #sitetocabaldizon OR #SITETOCAGUATEMALA OR #TeTocaGuatemala OR #XelaTeToca OR #YoVotoLider OR #VotaLider OR #PartidoLIDER OR #PreguntaleABaldizón)
Guatemala	Sandra Torres	(@SandraTorresGUA OR @partidoune OR #ActuoConHechos OR #ActúoConHECHOS OR #CuentaConmigo OR #DestinoTorres OR #DestinoUNE OR #foroaggune OR #GuatemalaSePongaLaVerde OR #GuateMeImportas OR #MePongoLaVerde OR #NosPonemosLaVerde OR #Oportunidades OR #PlanUNE OR #PlanUNE2015 OR #QuieroLaCitaConSandrita OR #RescateDeGuate OR #SandraLover OR #SandraLovers OR #UNE OR #uneistas OR #UnZingParaSandra OR #VosTambienPoneteLaVerde OR #VoyporSandra OR #YoActuoConHechos OR #YoTambiénMePongoLaVerde)
Guatemala	Zury Ríos	(@ZuryxGuate OR @FUERZA_VIVA OR @ApoyoZury OR #debateaggviva OR #DestinoZury OR #foroaggviva OR #FuerzaViva OR #GuatemalaYaCambio OR #GuateYaCambio OR #GuateYaCambió OR #InscribanAZury OR #jovenesviva OR #PartidoVIVA OR #VenenoConZury OR #ViVaGuatemala OR #VIVAZury OR #VotaVIVA OR #YoSiVotoPorZury OR #ZuryPresidenta OR #ZuryPresidente OR #ZuryRios OR #ZuryRíos OR #ZuryRíosPresidente OR #ZurySiPuede OR #ZurySíPuede OR #ZurySiVa)
Honduras	Juan Orlando Hernández	(@JuanOrlandoH OR @NacionalPartido OR @equipo_joh OR @vidamejorhn OR "Chamba Ahorita" OR #ADNazul OR #banderaazul OR #ChatConJuanOrlando OR #ChatConMiPresidente OR #ConChambaVivisMejor OR #ConChambaVivísMejor OR #ElPuebloPropone OR #EmpleoPorHora OR #EquipoJOH OR #HondurasEnPaz OR #HondurasEnPazyDemocracia OR #JOH OR #JOHPRESIDENTE OR #JOHTV OR #JuanOrlandoHernández OR #JuanOrlandoPresidente OR #JuanOrlandoResponde OR #juventudcachureca OR #JuventudNacionalista OR #LeyEmpleoPorHora OR #MarchaVidaMejor OR #Nacionalistas OR #PartidoNacional OR #PintateDeAzul OR #PíntateDeAzul OR #ProgramaDeEmpleoPorHora OR #SeguridadParaVivirMejor OR #SiALosMilitares OR #SúmateCachureco OR #TodosPorHonduras OR #UnaCasaUnaBandera OR #UnaVidaMejor OR #ValoresJOH OR #VamosAGanar OR #VidaMejor OR #voyportodoslosazules)
Honduras	Mauricio Villeda	(@VilledaMauricio OR @JuventudLiberal OR @MauricioVilleda OR "nueva Honduras" OR #ArribaPajarito OR #AVotarPorPajarito OR #ConTodoPajarito OR #ConVilledaSiSePuede OR #GanaVilleda OR

		#HondurasGanaConVilleda OR #Liberal OR #liberalesalpoder OR #LiberalesSiempreAdelante OR #LosOcupamosFirmes OR #MauricioTV OR #MauricioV OR #MauricioVilleda OR #MiVotoFueParaPajarito OR #Pajarito OR #PajaritoGana OR #PajaritoPresidente OR #partidoLiberal OR #Solidaridad OR #solidario OR #SoyPajarito OR #soyvilledista OR #TeFuistePajarito OR #TempranitoPorPajarito OR #VamosPajarito OR #Villeda3030 OR #VilledaGana OR #VilledaPresidente OR #VilledaTV OR #VillledaGana OR #VivaElPartidoLiberal OR #VivaPajarito OR #VotaLiberal OR #VotoPorPajarito OR #VotoPorVilleda OR #VuelaPajarito OR #YoSiSoyLiberal OR #YoSoyLiberal OR #YoVotoPorMauricio OR #YoVotoPorPajarito OR #YoVotoPorPájarito OR #YoVotoPorVilleda)
Honduras	Salvador Nasralla	(@SalvadorNasrala OR #ArribaPAC OR #FuerzaPac OR #GraciasPAC OR #grandePAC OR #HastaLosGringosSonPAC OR #LaHoraDeElPAC OR #LosBuenosSomosPAC OR #Nasralla4Presidente OR #PAC OR #SoyPac OR #TodosConElPAC OR #vamosPac OR #VOTAPAC OR #VOTEPAC OR #Yosoypac)
Honduras	Xiomara Castro de Zelaya	(@XiomaraCastroz OR @PartidoLibrehn OR @manuelzr OR @TuitsPorXiomara OR @pichuzelaya OR @juventudlibrehn OR #AtlantidaLibre OR #CholomaConXiomara OR #EligeLibre OR #GanaLibre OR #HondurasEsGrande OR #HondurasEsLibre OR #HondurasLibre OR #HondurasTienePresidenta OR #JuventudLibre OR #Libre OR #LibreEsHonduras OR #LibreEsHonduras OR #LibreSoy OR #MujeresLibres OR #NadieDetieneaLibre OR #PorUnCampoLibre OR #QueremosSerLibres OR #RutaXiomara OR #SerLibre OR #SerLibreEs OR #SomosLibre OR #SoyLibre OR #TodosSomosLibre OR #VamosPueblo OR #VotaLibre OR #XiomaraPresidenta)
Mexico	Andrés Manuel López Obrador	(@lopezobrador_ OR @CoordAMLO OR "progreso con justicia" OR "cambio verdadero" OR "democracia y dignidad" OR "Proyecto Alternativo de Nación" OR "reconciliación y unidad" OR "progreso y justicia" OR "renacimiento de México")
Mexico	Enrique Peña Nieto	(@EPN OR #YoNoVoyADividirAMéxico OR #TransiciónPorMéxico OR #EsMomentoDeMéxico OR #ManifiestoPorMéxico OR #ElComienzoDelCambio OR #EsMomentoDeMéxico OR #MéxicoConectado OR #MéxicoVaAGanarconEPN OR #MéxicoVaAEstarMejor OR #MiCompromisoconTabasco OR #PorElFuturoDeMéxico OR #EncuentrosporElFuturoDeMx OR #FuturoPolítico OR #EPNVeracruzEstacontigo OR #OrgulloFJR OR #PazYLibertad OR #CompromisoConLaEducaciónSuperior OR "cambio con responsabilidad" OR "México merece cambiar" OR "México va a cambiar" OR "cambio para México" OR "cambiar a México" OR "futuro de México" OR "cambio seguro" OR "México fuerte" OR "transformar a México" OR "Presidencia Democrática" OR "Estrategia Nacional para Reducir la Violencia" OR "México habrá de cambiar")
Mexico	Josefina Vásquez Mota	(@JosefinaVM OR @Equipo_JVM OR #Diferente OR #JosefinaGana OR #MujerEs OR #PAN OR #JVMPropone OR #VotaAsi OR #JosefinaPresidenta OR #Votaasí OR #ReformaPoliticaYA OR #josefinameconvence OR #PorUnMéxico OR #Josefina OR #JosefinaEnLaIbero OR #OtraVezGanaJosefina OR #DialogoconJosefina OR #MéxicoDiferente OR #FueraElFuero OR #quenoregresesalinas OR #MexicoSomosTodos OR #YoVoyConJosefina OR #PrefieroUnaMujerQue

		OR #CuandoJosefinaGane OR #YoTambienSoyJosefina OR #MeDeslindoComoEPN OR #eldebateesdeJosefina OR #SonoraConJosefina OR #PropuestasDeJosefina OR #YaesTiempodeunaMujer OR #MXdelfuturo OR #VotaJVM OR #Presidenta OR #ReformaPolíticaYA OR #BienvenidaPresidenta OR #VolanteoNacionalporJosefina OR #JVM3erGrado OR #ellasidebate OR #JVMManda OR #MéxicoParaTodos OR #NadaNosDetiene OR #DialogosConJosefina OR #JaliscoEsJosefina OR #TodosUnidosconJosefina OR "México mejor y diferente" OR "México diferente")
Panama	José Domingo Arias	(@JDAriasV OR @CaDemocratico OR @P_MOLIRENA OR @martamartinelli OR @AimeeAdeArias OR "#por más cambios" OR "Ciudad Mujer" OR "fuerza del cambio" OR "Pacto por la Reforma Urbana" OR @JoseDomingo2014 OR #AgendaJDA OR #CiudadMujer OR #GranCierreJDA OR #JoseDomingoLaFuerzaDeLoNuevo OR #LaFuerzadeloNuevo OR #LaFuerzadelPueblo OR #PanamaMas OR #VamosporMasCambios OR #Vota5)
Panama	Juan Carlos Navarro	(@JuancaNavarro OR @cuquidenavarro OR @CuquiCampagnani OR "Panamá Adentro" OR "Si son Navarro son buena gente" OR "Yo Incluyo" OR #CaminoAlaVictoria OR #DondeTuEstasYoToy OR #DondeTuTasToyYo OR #DondeTuTasYoToy OR #NavarroenlaUSMA OR #NavarroLMB OR #NavarroSI OR #NavarroSi OR #NavarroSí OR #NuevoPanama OR #NuevoPanamá OR #PactoEtico OR #PanamaTriunfa OR #PanamaVerde OR #PlandeTodos OR #PRD OR #QueHayPalosPelaos OR #RevolucionEducativa OR #SiSomosIndependientes OR #SiYoFueraPresi OR #Vota1 OR #VPdeNavarro)
Panama	Juan Carlos Varela	(@JC_Varela OR @IsabelStMalo OR @jcvarela2014 OR @fuerzavarela OR @panamenistas OR #BarriosSeguros OR #CaravanaDelTriunfo OR #ControldePrecios OR #educacionbilingue OR #EducaciónEsLaClave OR #ElMetrodeTodos OR #ElPueblo1ero OR #ElPuebloPrimero OR #EnDirectoConVarela OR #ganamosconvarela OR #HayEsperanza OR #JuanCarlosVarela OR #MejorCostodeVida OR #NoVotoPorEncuestas OR #PeopleFirst OR #planbarriosseguros OR #PropuestasSociales OR #pueblonuevo OR #PuebloPrimero OR #SanidadBasica OR #SanidadBásica OR #SomosFuerzaVarela OR #SuperSabado OR #SuperSábado OR #SúperSábado OR #TechosdeEsperanza OR #TodosConVarela OR #VamosaGanar OR #VarelaPresidente OR #VarelaPresidente OR #VarelaSi OR #Vota4 OR #YoVotoPorPropuestas OR #YoVotoPorVarela OR #yovoyconvarela OR "pueblo primero")
Paraguay	Efraín Alegre	(@EfrainAlegre OR @somosalegre OR "Alianza Paraguay Alegre" OR "Espacio Alegre" OR "Paraguay Alegre" OR "Primero Paraguay" OR "Py Alegre" OR #AdelanteParaguay OR #AlegrePresidente OR #AlianzaParaguay OR #CaminAlegre OR #CaravanaAlegre OR #CaravanAlegre OR #CostanerAlegre OR #EA OR #El21DeAbrilQuiero OR #JuventudAlegre OR #Lista4 OR #MiEncuesta OR #ParaguayAlegre OR #ParaguayEstaPrimero OR #PorUnParaguayAlegre OR #PRIMEROPARAGUAY OR #PyAlegre OR #TourAlegre OR #unparaguayalegre OR #VolanteadaAlegre OR #VotoPorAlegre OR Alegremanía)
Paraguay	Horacio Cartes	(#Abrazorepublicano OR #AgendaHC OR #AlmuerzoRepublicano OR

		#FiestaDelNuevoRumbo OR #FiestaRepublicana OR #GranFiestadelNuevoRumbo OR #HC OR #HC2013 OR #HechosNoPalabras OR #Jóveneslista1 OR #lista1 OR #Lista1 OR #MareaColorada OR #ÑandeParaguay OR #nocheroja OR #NuevoRumbo OR #ParaguayUnNuevoRumbo OR #UnNuevoRumbo OR #UnNuevoRumboParaElParaguay OR @Horacio_Cartes OR @LISTA1_ANR2013 OR @Lista1ANR OR "marea colorada" OR "Ñande Paraguay" OR "Nuevo Rumbo" OR "nuevo rumbo")
Paraguay	Mario Ferreiro	(@Ferreiromario1 OR @AvanzaPais2013 OR #AvanzaPais OR #avanzapaís OR #LISTA3 OR #lista3 OR #VotáLista3 OR #votalista3 OR #ferreiromario1)
Republica Dominicana	Danilo Medina	(@DaniloMedina OR #AlianzaPLDyPRSC OR #AzuaConDanilo OR #BocaChicaEsDeDanilo OR #BonaoConDanilo OR #BonaoEsDeDanilo OR #CambioSeguro OR #CaraACaraConDanilo OR #CibaoConDanilo OR #CiudadanosConDanilo OR #CompromisoMIPYME OR #ConversatorioPUCMM OR #CotuíConDanilo OR #DajabonEsDeDanilo OR #Danilo2012 OR #DaniloESElCambio OR #DaniloEsElmío OR #DaniloPresidente OR #DaniloSabeQueHacer OR #DecisiónFirme OR #DeLoMio OR #DemocraciaEs OR #DeportistasConDanilo OR #DialogoConDanilo OR #DiálogoFinjus OR #DNesDeDanilo OR #EducacionSegura OR #EducaciónSegura OR #EjesDelDesarrollo OR #El18ALas12 OR #ElCambioMarchaEnLaLinea OR #ElCambioSeguro OR #ElCambioVaConDanilo OR #ElCibaoVotaSeguro OR #ElEsteConDanilo OR #ElSeiboConDanilo OR #ElSeiboEsDeDanilo OR #ElSurEsDeDanilo OR #EspacioParaLasMujeres OR #EsperoDeUnPresidente OR #FantinoConDanilo OR #FiestaDelCambioSeguro OR #FormulaDeLaVictoria OR #FormulaDeLaVictoriaSantiago OR #FormulaDeLaVictoriaSDN OR #GobernarNoEsUnJuego OR #GobiernoTransparente OR #GrandesLigasconDanilo OR #HatoMayorConDanilo OR #HatoMayorEsDeDanio OR #HigüeyEsDeDanilo OR #HistoriaDeUnLider OR #JuntosPorElCambioSeguro OR #LaCapitalEsDeDanilo OR #LaEstrellaDeLaVictoria OR #LaVegaConDanilo OR #LaVegaEsDeDanilo OR #LaViceDelPueblo OR #LeonelEnSantiago OR #LeonelFernández OR #MaoEsDeDanilo OR #MasTurismoParaRD OR #MásTurismoParaRD OR #mifamiliaesdeDanilo OR #MocaEsDeDanilo OR #MontecristiEsDeDanilo OR #MontePlataEsDeDanilo OR #MujeresDeMiPatria OR #NaguaConDanilo OR #NaguaEsDeDanilo OR #NewYorkesdeDanilo OR #NorteConDanilo OR #OcoaConDanilo OR #PedernalesConDanilo OR #PeraviaConDanilo OR #PeraviaConDanilo OR #PlanGobiernoPLD OR #PLDenMarcha OR #PLDInvencible OR #PLDInvencible OR #PoliticaSinViolencia OR #Pontepamipais OR #PontePaTuPais OR #ProclamaciónPQDC OR #ProclamacionUCD OR #ProclamacionUDC OR #PuertoPlataConDanilo OR #PuertoPlataEsDeDanilo OR #RevoluciónAbril OR #RumboALaVictoria OR #SamanaEsDeDanilo OR #SanCristóbalEsDeDanilo OR #SanFranciscoConDanilo OR #SanPedroConDanilo OR #SantiagoConDanilo OR #SantiagoRodriguezEsdeDanilo OR #SDEconDanilo OR #SDOesDeDanilo OR #SDOesDeDanilo OR #UnCambioSeguro OR #UnPaisTrabajador OR #VillaAltagraciaEsDeDanilo OR #VueltaAlLagoConDanilo)

Republica Dominicana	Hipólito Mejía	(@llegopapa OR #NoMasCorruptos OR #OcoaconPapa OR #ElPRDenLaCalle OR #inseguridad OR #ElCambioDeVerdad OR #DomineconPapa)
Uruguay	Luis Lacalle Pou	(@luislacallepou OR @jorgewlarranaga OR @PNACIONAL OR @lista71 OR @alianzauy OR “Revolución Positiva” OR “Uruguay Unido” OR #CaravanaPositiva OR #CarrascoPorLaPositiva OR #FaltaGestionResponsable OR #ganaelpartidonacional OR #GanaLacallePou40 OR #GanaLaPositiva OR #GanaLaPostiva OR #innovar404 OR #jovenesrebeldes OR #lista400 OR #loqueremosverPresidente OR #LoQuieroVerPresidente OR #LoQuierVerPresidente OR #NoNosParaNadie OR #nuestrabandera OR #plenario404 OR #PolaPositiva OR #PorLaPositiva OR #RebeldesConCausa OR #revolucionpositiva OR #RevoluciónPositiva OR #RevoluciónPositiva OR #SeVienenLosBlancos OR #UnaRevolucionPositiva OR #UnaRevoluciónPositiva OR #UnidosPorLaPositiva OR #UnPaisporlaPositiva OR #UnPaísPorLaPositiva OR #UnPaisUnidoPorLaPositiva OR #UruguauyUnido OR #UruguayPositivo OR #UruguayUnido OR #UruguayUnidoPorLaPositiva OR PorlaPositiva)
Uruguay	Pedro Bordaberry	(@PedroBordaberry OR @germancoutinho OR @_vamosuruguay OR @P_Colorado OR “Vivir en Paz” OR #10RazonesParaVotarLa10 OR #CompromisoDeCambio OR #DeberianPonerseColorados OR #la10enlasferias OR #Lista10 OR #ParaVivirEnPaz OR #paraVivirEnPsz OR #PedroBus OR #PedroConTabare OR #PedroDebate OR #PedroEstaListo OR #PedroEstáListo OR #PedroPresidente OR #PedroResponde OR #PedroSiLesGana OR #PedroYGerman OR #PedroYGermán OR #PoneteColorado OR #rayoColorado OR #SiAVivirEnPaz OR #TodosSomosPedro OR #VamosAVivirEnPaz OR #YoEstoy)
Uruguay	Tabaré Vázquez	(@RaulSendic_uy OR @Frente_Amplio OR @Jovenes_FA OR @Redesfa OR “Uruguay cambió en mi” OR “Uruguay no baja” OR “Uruguay no se detiene” OR #3FA OR #BanderaFA OR #ElFuturoNoPara OR #JóvenesFA OR #MañanaVotaFA OR #NoALaBaja OR #PlenarioNacionalFA OR #PoneTercera OR #PonéTercera OR #PoneTerceraMVD OR #ProgramaFA OR #QueNoSeDetenga OR #Tabare OR #Tabaré OR #TabarePresidente OR #TabaréPresidente OR #TabareSendic OR #TabaréSendic OR #TabarèSendic OR #TabareVázquez OR #UruguaNoSeDetiene OR #Uruguaycambioenmi OR #UruguayCambioEnMí OR #UruguayCambióenmí OR #UruguayNoBaja OR #Uruguaynobajanisedetiene OR #Uruguaynosedetiene OR #UruguayXMas OR #UruguayxMás OR #Vázquez OR #VázquezEnElObservadorTV OR #YoSoyFa OR #YoVotoFA)
Venezuela	Henrique Capriles	(@hcapriles OR #aunhayuncamino OR #AunHayUnCamino OR #AVALANCHA OR #BNSimonovisLibre OR #CaprilesEnChataingTV OR #CaprilesVenezuelayELMUNDOestácontigo OR #CaracasHeroica OR #ComandoFamiliar OR #ElCaminoContinua OR #elcaminoestáenconstrucción OR #EstamosconlaVerdad OR #EstamosConLaVerdad OR #granitodearena OR #HayUnCamino OR #JovenesComprometidosConVenezuela OR #JuntosSinMiedo OR #JuventudConVenezuela OR #LaInflaciónEnVenezuela OR

		#LaVenezueladePAZ OR #Madresconudssiempre OR #Másdelomismo OR #MedidaHumanitaria OR #MedidaHumanitariaParaSimonovis OR #mentirafresca OR #MentiraFresca OR #MientrasTanto OR #MiPae OR #NoalaAuditoriaCHIMBA OR #PaquetazoROJO OR #QueCadaCaprilistaTengaUnMillonDeSeguidores OR #RecursosParaMiranda OR #Salserolazo OR #TestigodeMesa OR #VenezuelaSomosTodos OR #VotaSinMiedo OR #votoxvoto OR #VzlaParaCuidarteTengoEstaVidaMía OR #YoestoyconlaVerdad OR #YosoyVenezolano OR #YosoyProgresista OR #YosoyMovilizador OR #yoyavote OR @ComandoSB)
Venezuela	Nicolás Maduro	(@NicolasMaduro OR @chavezcandanga OR #1deMayo OR #6EjesPorLaPaz OR #A2MesesDeTuPartidaChavez OR #AbrazandoLaPatriaGrande OR #ALBA OR #AquiSeGobiernaEnLaCalle OR #BigotesdemiPatria OR #CANDANGAPura OR #Chavez OR #ChavezCandangaVIVIRASporSIEMPRE OR #ChavezNoTeFallaremos OR #ChavezporsiempreMaduropresidente OR #ChavezTeLoJuro OR #ChavezTeLoJuroMiVotoporMaduro OR #ChavezVive OR #ChavezViveLaLuchaSigue OR #ComandanteSupremo OR #ConChavezyMaduro OR #ConMaduroDeCorazón OR #DerrotandoalFascismo OR #DeSabanetaAMiraflores OR #DialogoBolivariano OR #El14GanaMaduro OR #ElBaileDeNicolas OR #ElLegadoDeChavez OR #ElpuebloNoOlvida OR #EntreChavistasNosSeguimos OR #EstaHistoriaSeLlamaChávez OR #GabinetePalante OR #GobiernoDeCalle OR #GuerrillaACTIVA OR #IVSS OR #JPSUV OR #JuroConMaduro OR #LaTropaEsChavezyMaduro OR #LealtadAbsoluta OR #LosquequieranFUTUROvenganconMADURO OR #MadresRevolucionariasConMaduro OR #MaduroMiComandanteEnJefe OR #MaduroRevolucionLatinoAmericana OR #MaduroUnidadLatinoamericana OR #MareaRojaEnOriente OR #MasTrabajoYMenosViolencia OR #MensajedeLula OR #MirandaConMaduro OR #NOVOLVERAN OR #PalanteMaduro OR #ParaSiempreHugoChávez OR #ParqueEolico OR #Petrocaribe OR #PorLaPazConMADURO OR #PorLaPAZconMADURO OR #PSUV OR #RevoluciónEnLaRevolución OR OR #SeguimosJUNTOS OR #SOMOSlaGENTEdeCHAVEZ OR #SOMOSlaTROPAdeNICOLAS OR #TrabajadoresDeLaPatria OR #Tropa OR #TROPA OR #TTVENFascista OR #TTVENFascistas OR #Venceremos2012 OR #VenezuelaEsChavista OR #VotoPorLaPatria OR #YoSIGOaMADURO)

Apendix B – Campaign Sphere networks in Latin American elections, by candidate

Country	Candidate	Date	Posts (thousads)	Vertices and (Arcs) 1st / Single Round - thousands	Vertices and (Arcs) Second Round - thousands	Vertices and (Arcs) After Elections - thousands
Argentina	danielscioli	06/27/15 to 12/22/15	1007.6	88.9 (703.9)	57.5 (216.8)	34.3 (86.9)
Argentina	mauriciomacri	06/27/15 to 12/22/15	1250.6	100.4 (767.1)	65 (232.8)	80 (250.6)
Argentina	NicolasdelCano	06/27/15 to 12/22/15	231.2	14.5 (116.3)	15.5 (62.8)	19.4 (52.1)
Argentina	SergioMassa	06/27/15 to 12/22/15	614.7	53 (347.7)	25.8 (82.4)	13 (33.2)
Bolivia	EvoMPresidente	06/14/14 to 11/11/14	33.9	2.6 (33.8)	---	0.9 (4.7)
Bolivia	SDoriaMedina	06/14/14 to 11/11/14	11.7	1.5 (10.7)	---	0.4 (1)
Bolivia	TutoQuiroga	06/14/14 to 11/11/14	4.8	0.7 (4.5)	---	0.2 (0.3)
Brazil	AecioNeves	06/07/14 to 11/25/14	629.8	43.9 (389)	37.1 (158.7)	19.5 (82.1)
Brazil	dilmabr	06/07/14 to 11/25/14	976.7	102.2 (716.5)	41.3 (163.3)	26.8 (96.9)
Brazil	silva_marina	06/07/14 to 11/25/14	405.8	61.7 (339)	21.8 (52.7)	8 (14.2)
Chile	evelynmatthei	07/20/13 to 01/14/14	170.6	22.9 (116.5)	12.3 (51.9)	1.6 (2.2)
Chile	Fr_parisi	07/20/13 to 01/14/14	394.8	44.7 (360.6)	8.7 (28.9)	2.4 (5.3)
Chile	marcoporchile	07/20/13 to 01/14/14	284.6	35.6 (249.1)	11 (30.6)	2.3 (4.9)
Chile	MichelleConce	07/20/13 to 01/14/14	142.8	21.7 (101.1)	10.4 (38.4)	2.3 (3.3)

Colombia	ClaraLopezObre	01/25/14 to 07/15/14	165.3	28.5 (108.1)	16.8 (41.3)	9 (15.9)
Colombia	EnriquePenalosa	01/25/14 to 07/15/14	204.2	36.2 (187.7)	8.4 (14.5)	1.6 (2)
Colombia	JuanManSantos	01/25/14 to 07/15/14	937.6	89.3 (661.7)	43.1 (159.7)	41.2 (116.1)
Colombia	mluciaramirez	01/25/14 to 07/15/14	195.2	27.3 (123.7)	16 (58.9)	5.7 (12.6)
Colombia	OIZuluaga	01/25/14 to 07/15/14	1063.0	82.8 (771.6)	39.6 (163.8)	28 (127.5)
CostaRica	Johnny_Araya	10/05/13 to 05/06/14	59.5	4.2 (41)	3.1 (17.3)	0.5 (1.2)
CostaRica	josemvillalta	10/05/13 to 05/06/14	32.2	4.2 (27.7)	1.4 (3.5)	0.3 (0.5)
CostaRica	luisguillermosr	10/05/13 to 05/06/14	98.4	6.1 (52)	5.9 (31.7)	4.2 (14.6)
CostaRica	OttoGuevaraG	10/05/13 to 05/06/14	12.2	2.5 10.1)	1.1 (1.7)	0.2 (0.3)
CostaRica	pizarodolfo	10/05/13 to 05/06/14	11.4	2.1 (10)	0.7 (1.2)	0.2 (0.3)
Ecuador	LassoGuillermo	10/20/12 to 03/19/13	94.2	16.5 (85.5)	---	4.6 (8.7)
Ecuador	LucioGutierrez3	10/20/12 to 03/19/13	19.9	4.9 (17.9)	---	1.1 (2)
Ecuador	MashiRafael	10/20/12 to 03/19/13	233.8	36.5 (193.5)	---	16.3 (40.3)
El Salvador	norman_quijano	10/05/13 to 04/08/14	198.5	10.6 (101.7)	8.4 (57.6)	8.2 (39.2)
El Salvador	sanchezceren	10/05/13 to 04/08/14	197.4	8.3 (101.1)	6.7 (53.6)	7.5 (42.7)
El Salvador	tonysacaoficial	10/05/13 to 04/08/14	133.5	5.6 (127.7)	2 (4.9)	0.6 (0.9)
Guatemala	Dr_MDGarcia	05/09/15 to 11/24/15	4.5	1.8 (4.1)	0.2 (0.2)	0.1 (0.1)
Guatemala	DrGiammattei	05/09/15 to 11/24/15	8.0	2.2 (5.8)	1.3 (0.4)	0.1 (0.1)

Guatemala	jimmymoralesgt	05/09/15 to 11/24/15	54.2	4.3 (11.4)	8.4 (30.3)	5.1 (12.5)
Guatemala	lizarsosa	05/09/15 to 11/24/15	5.3	1.5 (5)	0.2 (0.2)	0.1 (0.1)
Guatemala	ManuelBaldizon	05/09/15 to 11/24/15	54.2	11.7 (45.9)	4.1 (8.1)	0.2 (0.2)
Guatemala	SandraTorresGUA	05/09/15 to 11/24/15	58.5	5.5 (19.1)	8 (31.1)	2.6 (8.4)
Guatemala	ZuryxGuate	05/09/15 to 11/24/15	16.8	4.9 (16.2)	0.5 (0.5)	0.1 (0.1)
Honduras	JuanOrlandoH	07/27/13 to 12/24/13	57.0	5.6 (44)	---	4.3 (13)
Honduras	SalvadorNasrala	07/27/13 to 12/24/13	52.9	10 (41)	---	4.9 (11.9)
Honduras	VilledaMauricio	07/27/13 to 12/24/13	33.0	3.3 (28.8)	---	2 (4.2)
Honduras	XiomaraCastroz	07/27/13 to 12/24/13	53.6	4.5 (44.7)	---	2.8 (9)
Mexico	EPN	03/03/12 to 07/31/12	1043.2	152.7 (871.3)	---	68.1 (171.9)
Mexico	JosefinaVM	03/03/12 to 07/31/12	865.2	132.6 (815.1)	---	24.5 (50.1)
Mexico	lopezobrador_	03/03/12 to 07/31/12	833.9	119.8 (731.7)	---	41.1 (102.2)
Panama	JC_Varela	01/04/14 to 06/03/14	308.3	14.3 (266.8)	---	11.1 (41.5)
Panama	JDAriasV	01/04/14 to 06/03/14	178.3	14.1 (168)	---	3.3 (10.4)
Panama	JuancaNavarro	01/04/14 to 06/03/14	284.2	14.4 (214.3)	---	7.8 (38.1)
Paraguay	EfrainAlegre	12/22/12 to 05/21/13	37.9	8.9 (36.6)	---	1.1 (1.4)
Paraguay	Ferreiromario1	12/22/12 to 05/21/13	42.6	6.4 (39)	---	1.9 (3.6)

Paraguay	Horacio_Cartes	12/22/12 to 05/21/13	81.4	14.7 (65.4)	---	8.2 (4.6)
Dominican R.	DaniloMedina	01/21/12 to 06/19/12	264.7	16.1 (247)	---	6.8 (17.6)
Dominican R.	llegopapa	01/21/12 to 06/19/12	254.4	9.8 (248.5)	---	2 (5.9)
Uruguay	FrenteAmplio	06/28/14 to 12/30/14	158.9	9.6 (121.5)	5.4 (31.5)	2.4 (5.9)
Uruguay	luislacallepou	06/28/14 to 12/30/14	241.6	8.2 (177.9)	5.2 (55.2)	1.8 (8.5)
Uruguay	PedroBordaberry	06/28/14 to 12/30/14	124.5	4.6 (76.1)	4.1 (42.8)	1.1 (5.6)
Venezuela	hcapriles	12/15/12 to 05/14/13	901.5	160 (670.6)	---	98.7 (230.8)
Venezuela	NicolasMaduro	12/15/12 to 05/14/13	817.9	127.2 (597.9)	---	2.7 (220)

References

Abokhodair, N., Yoo, D., & McDonald, D. W. (2015, February). Dissecting a social botnet: Growth, content and influence in Twitter. In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing* (pp. 839-851). ACM.

Abramowitz, A. I. (1988). An improved model for predicting presidential election outcomes. *PS: Political Science & Politics*, 21(4), 843-847.

Aldrich, John. (2011). *Why Parties? A Second Look.* Chicago: Chicago University Press.

Almond, Gabriel (1956). Comparative Political Systems. *The Journal of Politics*, 18(3), 391-409.

Amador Diaz Lopes, Julio Cesar; Collignon-Delmar, Sofia; Benoit, Kenneth & Matsuo, Akitaka (2017). Predicting the Brexit Vote by Tracking and Classifying Public Opinion Using Twitter Data. *Statistics, Politics and Policy*, 8.

Anderson, B. & Silver, B. (1986). Measurement and Mismeasurement of the Validity of the

Self-Reported Vote. *American Journal of Political Science,* 30:4.

Avritzer, Leonardo (2017). Participation in democratic Brazil: from popular hegemony and innovation to middle-class protest. *Opinião Pública*, 23: 1.

Baker, R.; Blumberg, S.J.; Brick, S.M.; Couoper, M.P.; Courtright, M. et al. (2010). AAPOR report on online panels. *Public Opinion Quarterly*, 74:4, 711-781.

Baker, R., Brick, J. M., Bates, N. A., Battaglia, M., Couper, M. P., Dever, J. A., Gile, K. J. & Tourangeau, R. (2013). Summary report of the AAPOR task force on non-probability sampling. *Journal of Survey Statistics and Methodology*, *1*(2), 90-143.

Baker, Andy & Greene, Kenneth F. (2011). The Latin American Left`s Mandate: Free-Market Policies and Issue Voting in New Democracies. World Politics 63(1): 43-77.

Barberá, P., & Rivero, G. (2015). Understanding the political representativeness of Twitter users. *Social Science Computer Review*, *33:*6, 712-729.

Batagelj, V., & Mrvar, A. (1998). Pajek-program for large network analysis. *Connections*, *21*(2), 47-57.

Baum, M. & Kernell, A. (1999). Has cable ended the golden age of presidential television? *The American Political Science Review*, 93(1).

Baumol, William (1957). Interactions Between Successive Polling Results and Voting Intentions. *Public Opinion Quarterly*, 21 (2), 318-323.

Bennett, W. Lance & Segerberg, Alexandra (2013). *The Logic of Connective Action: Digital Media and the Personalization of Contentious Politics*. Cambridge: Cambridge University Press.

Berinsky, Adam (2017). Measuring public opinion with surveys. *Annual Review of Political Science*, 20, 309-329.

Bermingham, Adam & Smeaton, Alan F. (2011). On Using Twitter to Monitor Political Sentiment and Predict Election Results. In *Proceedings of the Workshop on Sentiment Analysis where AI meets Psychology* (SAAIP 2011), IJCNLP 2011, pages 2–10, Chiang Mai, Thailand, November 13.

Bessi, A., & Ferrara, E. (2016). Social bots distort the 2016 US Presidential election online discussion. *First Monday*, 21 (11).

Bimber, Bruce (2003). *Information and American Democracy: Technology in the Evelution of Poltiical Power.* Cambridge: Cambridge University Press.

Bimber, Bruce (2014). Digital Media in the Obama Campaigns of 2008 and 2012: Adaptation to the Personalized Political Communication Environment. *Journal of Information, Technology & Politics*, 11 (2), 130-150.

Bimber, Bruce (2017). Three prompts for collective action in the context of digital media. *Political Communication*, 34(1), 6-20.

Bimber, Bruce; & Copeland, Lauren (2013). Digital media and traditional political participation over time in the US. *Journal of Information Technology & Politics*, 10(2).

Bimber, Bruce; Cunill, Marta Cantijoch; & Copeland, Lauren (2014). Digital media and political participation: the moderating role of political interest across acts and over time. *Social Science Computer Review*, 33(1).

Bimber, B., Flanagin, A. J., & Stohl, C. (2005). Reconceptualizing collective action in the contemporary media environment. *Communication Theory*, 15(4), 365-388.

Bimber, B., Flanagin, A., & Stohl, C. (2012). *Collective action in organizations: Interaction and engagement in an era of technological change*. Cambridge University Press.

Bischoping, K., & Schuman, H. (1992). Pens and polls in Nicaragua: An analysis of the 1990 preelection surveys. *American Journal of Political Science*, 331-350.

Boas, T. C. (2010). Varieties of Electioneering: Success contagion and presidential campaigns in Latin America. *World Politics*, 62 (4).

Bollen, J., Mao, H., & Zeng, X. (2011). Twitter mood predicts the stock market. *Journal of computational science*, *2*(1), 1-8.

Boshmaf, Y., Muslukhov, I., Beznosov, K., & Ripeanu, M. (2012). Key challenges in defending against malicious socialbots. In *Proceedings of the 5th USENIX Conference on Large-scale Exploits and Emergent Threats*, LEET'12, Berkeley, CA

Bowden, Roger (1987). Repeated Sampling in the Presence of Publication Effects. *Journal of the American Statistical Association*, 82 (398), 476-484.

Boyd, Danah; & Kate Crawford (2012). Critical Questions for Big Data. *Information, Communication & Society*, 15 (5), 662-679.

Brettschneider, F. (1997). The Press and the Polls in Germany, 1980–1994, *International*

Journal of Public Opinion Research, 9(3), 248–264.

Brettschneider, F. (2008). The News Media's Use of Opinion Polls, in W. Donsbach & M. W. Traugott (Eds.), *The Sage Handbook of Public Opinion Research.* London: Sage.

Brick, J., & Williams, D. (2013). Explaining Rising Nonresponse Rates in Cross-Sectional Surveys. *Annals of the American Academy of Political and Social Science, 645*, 36-59.

Broh, C. Anthony (1980). Horse-Race Journalism: Reporting the Polls in the 1976 Presidential Election. *Public Opinion Quarterly*, 44(4), 514-529.

Brudney, J. (1982). An Elite View of the Polls. *Public Opinion Quarterly, 46*(4), 503-509.

Bryson, M. (1976). The Literary Digest Poll: Making of a Statistical Myth. *The American Statistician*, 30(4), 184-185.

Burden, B. (2000). Voter Turnout and the National Election Studies. *Political Analysis, 8*(4), 389-398.

Burnap, P., Gibson, R., Sloan, L., Southern, R., & Williams, M. (2016). 140 characters to

victory?: Using Twitter to predict the UK 2015 General Election. *Electoral Studies*, *41*, 230-233.

Cabreja, Javier. "Las encuestas como propaganda electoral". El Caribe, 2/5/2016. Retrieved from http://www.elcaribe.com.do/2016/02/05/las-encuestas-como-propaganda-electoral

Callander, Steven (2007). Bandwagons and Momentum in Sequential Voting. *Review of Economic Studies*, 74, 653-684.

Campbell, J. E. (1996). Polls and votes: the trial-heat presidential election forecasting model, certainty, and political campaigns. *American Politics Quarterly*, 24(4), 408-433.

Campbell, James (2012). "Forecasting the 2012 American National Elections." *PS: Political Science & Politics*. 45:4.

Canel, María José; & Voltmer, Katrin (2014). "Comparing Political Communication across Time and Space: Conceptual and Methodological Challenges in a Globalized World – An Introduction." In María José Canel; Katrin Voltmer, eds., *Comparing Political Communication across Time and Space: New Studies in an Emerging Field*. Hampshire, UK: Palgrave MacMillan.

Carlisle, J., & Patton, R. (2013). Is Social Media Changing How We Understand Political Engagement? An Analysis of Facebook and the 2008 Presidential Election. *Political Research Quarterly, 66*(4), 883-895.

Carreras, M. & Castaneda-Angarita, N. (2014). Who Votes in Latin America? A Test of Three Theoretical Perspectives. *Comparative Political Studies*, 47(8).

Carrington, P. J.; Scott, J. & Wasserman, S. (2005). *Models and Methods in Social Network Analysis*. Cambridge: Cambridge University Press.

Castells, Manuel. (2015). *Networks of outrage and hope: Social movements in the Internet age*. John Wiley & Sons.

Ceci, S., & Kain, E. (1982). Jumping on the Bandwagon With the Underdog: The Impact of Attitude Polls on Polling Behavior. *The Public Opinion Quarterly*, 46 (2), 228-242.

Cha, M., Haddadi, H., Benevenuto, F., & Gummadi, P. K. (2010). Measuring user influence in twitter: The million follower fallacy. *ICWSM*, *10*(10-17), 30.

Chadwick, Andrew (2006). *Internet Politcs: States, Citizens, and New Communication Technologies.* New York: Oxford University Press.

Chadwick, Andrew (2017). *The hybrid media system: Politics and power.* Oxford University Press.

Charquero, Gonzalo (2014, October 29). Frente Amplio impulsará una ley para regular las encuestadoras. *El Observador.* Retrieved from http://www.elobservador.com.uy

Chen, R., Xu, W., & Zhang, X. (2016). Dynamic Box Office Forecasting Based on Microblog Data. *Filomat, 30*(15), 4111-4124.

Chong, I. G., & Jun, C. H. (2005). Performance of some variable selection methods when multicollinearity is present. *Chemometrics and intelligent laboratory systems*, 78(1), 103-112.

Choy, M., Cheong, M. L., Laik, M. N., & Shung, K. P. (2011). A sentiment analysis of Singapore Presidential Election 2011 using Twitter data with census correction. *arXiv preprint arXiv:1108.5520*.

Choy, M., Cheong, M., Laik, M. N., & Shung, K. P. (2012). US presidential election 2012 prediction using census corrected Twitter model. *arXiv preprint arXiv:1211.0938*.

Chu, Z., Gianvecchio, S., Wang, H., & Jajodia, S. (2012). Detecting automation of twitter accounts: Are you a human, bot, or cyborg?. *IEEE Transactions on Dependable and Secure Computing*, *9*(6), 811-824.

Chung, J. E., & Mustafaraj, E. (2011, August). Can collective sentiment expressed on twitter predict political elections?. In *AAAI* (Vol. 11, pp. 1770-1771).

Cigler, Allan J. and Burdett A. Loomis (2007). "Organized Interests, Political Parties, and Representation: James Madison, Tom DeLay, and the Soul of American Politics." In Allan J. Cigler and Burdett A. Loomis, eds., *Interest Group Politics*. Washington: CQ Press.

Conover, M., Ratkiewicz, J., Francisco, M. R., Gonçalves, B., Menczer, F., & Flammini, A. (2011). Political polarization on twitter. *ICWSM*, *133*, 89-96.

Cox, G. W. (1997). *Making votes count: strategic coordination in the world's electoral systems*. Cambridge University Press.

CNN en Español (2012). CNN desmiente presunta encuesta electoral en República Dominicana. *CNN en Español*, May 12, Retrieved at http://cnnespanol.cnn.com/2012/05/12/cnn-desmiente-presunta-encuesta-electoral-en-republica-dominicana/

Crowell, Colin (2017). Our Approach to Bots & Misinformation. *Twitter Public Policy*. June, 14. Retrieved from https://blog.twitter.com/official/en_us/topics/company/2017/Our-Approach-Bots-Misinformation.html

Culotta, A. (2013). Lightweight methods to estimate influenza rates and alcohol sales volume from Twitter messages. *Language Resources and Evaluation, 47*(1), 217-238.

Dalton, Russell J. (2002). *Citizen Politics: public opinion and political parties in advanced industrial democracies.* Washington: CQ Press.

Dalton, Russell J.; Martin P. Wattenberg (2000). "Partisan Change and the Democratic Process." In Russell J. Dalton and Martin P. Wattenberg, eds., *Parties without Partisans: Political Change in Advanced Industrial Democracies.* New York: Oxford University Press.

Davis, C. A., Varol, O., Ferrara, E., Flammini, A., & Menczer, F. (2016, April). Botornot: A system to evaluate social bots. In *Proceedings of the 25th International Conference Companion on World Wide Web* (pp. 273-274). International World Wide Web Conferences Steering Committee.

De Heer, W., & De Leeuw, E. (2002). Trends in household survey nonresponse: A longitudinal and international comparison. *Survey nonresponse*, 41.

De Nooy, W., Mrvar, A., & Batagelj, V. (2011). *Exploratory social network analysis with Pajek* (Vol. 27). Cambridge: Cambridge University Press.

Delli Carpini, Michael X. (1984). Scooping the Voters? The Consequences of the Networks' Early Call of the 1980 Presidential Race. *Journal of Politics*, 46 (3), 866-885.

Dickerson, J. P., Kagan, V., & Subrahmanian, V. S. (2014, August). Using sentiment to detect bots on twitter: Are humans more opinionated than bots?. In *Advances in Social Networks Analysis and Mining* (ASONAM), 2014 IEEE/ACM International Conference on (pp. 620-627). IEEE.

Duverger, Maurice (1959). *Political Parties: Their Organization and Activity in the Modern State*. London: Methuen.

Duverger, Maurice. (1990). "Caucus and Branch, Cadre Parties and Mass Parties." In Peter Mair, ed., *The West European Party System*. New York: Oxford University Press.

Ess, C. (2002). Ethical decision-making and Internet research: recommendations from the aoir ethics working committee, Association of Internet Researchers. Retrieved

from http://aoir.org/reports/ethics.pdf

Esser, Frank (2014). "Methodological Challenges in Comparative Communication Research: Advancing Cross-National Research in Times of Globalization." In María José Canel; Katrin Voltmer, eds., *Comparing Political Communication across Time and Space: New Studies in an Emerging Field*. Hampshire, UK: Palgrave MacMillan.

Farrar, D. E., & Glauber, R. R. (1967). Multicollinearity in regression analysis: the problem revisited. *The Review of Economic and Statistics*, 92-107.

Ferguson, P. A. & C. de Clercy (2005). Regulatory Compliance in Opinion Poll Reporting During the 2004 Canadian Election. *Canadian Public Policy*, 31(3), 243–257.

Ferrara, E., Varol, O., Davis, C., Menczer, F., & Flammini, A. (2016). The rise of social bots. *Communications of the ACM*, 59(7), 96-104.

Fleitas, Daniel (1971). Bandwagon and Underdog Effects in Minimal-Information Elections. *The American Political Science Review*, 65 (2), 434-438.

Fornos, C. A., Power, T. J., & Garand, J. C. (2004). Explaining voter turnout in Latin America, 1980 to 2000. *Comparative Political Studies*, 37(8), 909-940.

Freeman, L. C. (2004). *The Development of Social Network Analysis: A Study in the Sociology of Science*. Vancouver, Canada: Empirical Press.

Gallup, G. H., & Rae, S. F. (1940). *Pulse of Democracy: The Public Opinion Poll and How it Works*. New York: Simon and Schuster.

Gainous, J., & Wagner, K. M. (2011). *Rebooting American politics: The internet revolution*. Rowman & Littlefield.

Gayo-Avello, D. (2012). " I Wanted to Predict Elections with Twitter and all I got was this Lousy Paper"--A Balanced Survey on Election Prediction using Twitter Data. *arXiv preprint arXiv:1204.6441*.

Gayo-Avello, D.; Metaxas, P.T. & Mustafaraj, Eni (2011). Limits of Electoral Predictions Using Twitter. In *Proceedings of the Fifth International AAAI Conference on Weblogs and Social Media*. AAAI

Gélineau, François (2007). Presidents, Political Context, and Economic Accountability: Evidence from Latin America. *Political Research Quarterly*, 60 (3), 415-428.

Gelman, Andrew; & King, Gary (1993). “Why are American Presidential Election Campaign

Polls so Variable When Votes Are so Predictable?" *British Journal of Political Science.* 23:4.

Gibson, Rachel K. (2013). "Party change, social media and the rise of 'citizen-initiated' campaigning." *Party Politics*, 1-15.

Gidengil, E. (2008) 'Media Matter: Election Coverage in Canada', in J. Strömbäck & L. L. Kaid (eds), *The Handbook of Election News Coverage Around the World*. New York: Routledge.

Gimpel, J., & Harvey, D. (1997). Forecasts and Preferences in the 1992 General Election. *Political Behavior*, 19 (2), 157-175.

Go, A., Bhayani, R., & Huang, L. (2009). Twitter sentiment classification using distant supervision. *CS224N Project Report, Stanford*, *1*(2009), 12.

Goel, S., Hofman, J., Lahaie, S., Pennock, D., & Watts, D. (2010). Predicting consumer behavior with Web search. *Proceedings of the National Academy of Sciences of the United States of America, 107*(41), 17486-17490.

Goidel, R., & Shields, T. (1994). The Vanishing Marginals, the Bandwagon, and the Mass Media. *Journal of Politics*, 56(3), 802-810.

Gosnell, Harold (1937). How Accurate Were the Polls? *Public Opinion Quarterly*, 1(1), 97-109.

Gouws, A. & A. S. de Beer (2008). Media and Elections in South Africa: Finding a Foothold on the Democratic Path, in J. Strömbäck & L. L. Kaid (Eds.), *The Handbook of Election News Coverage Around the World*. New York: Routledge.

Grofman, Bernard & Lijphart, Arend (2002). *The Evolution of Electoral and Party Systems in the Nordic Countries*. New York: Agathon Press.

Groves, R. M. (2006). Nonresponse rates and nonresponse bias in household surveys. *Public Opinion Quarterly*, 646-675.

Groves, R. M., & Peytcheva, E. (2008). The impact of nonresponse rates on nonresponse bias: a meta-analysis. *Public Opinion Quarterly*, *72*(2), 167-189.

Habermas, J. (1991). *The structural transformation of the public sphere: An inquiry into a category of bourgeois society*. MIT press.

Hallin, Daniel C.; and Stylianos Papathanassopoulos (2002). Political clientelism and the media: Southern Europe and Latin America in comparative perspective. *Media*

Culture & Society 24 (2).

Haustein, S.; Bowman, T. D.; Holmberg, K.; Tsou, A.; Sugimoto, C. R., & Larivière, V. (2016). Tweets as impact indicators: Examining the implications of automated "bot" accounts on Twitter. *Journal of the Association for Information Science and Technology*, *67*(1), 232-238.

Hersh, Eitan D. (2015). *Hacking the electorate: How campaigns perceive voters*. Cambridge, UK: Cambridge University Press.

Holbrook, A., Krosnick, J. A., & Pfent, A. (2007). The causes and consequences of response rates in surveys by the news media and government contractor survey research firms. *Advances in telephone survey methodology*, 499-528.

Howard, Philip (2005). "Deep Democracy, Thin Citizenship: The Impact of Digital Media in Political Campaign Strategy." *Annals of the American Academy of Political and Social Science*, Vol. 597, Cultural Production in a Digital Age. Jan.

Huberman, B., Romero, D. M., & Wu, F. (2009). Social networks that matter: Twitter under the microscope. *First Monday*, 14.

Huberty, M. (2015). Can we vote with our tweet? On the perennial difficulty of election

forecasting with social media. *International Journal of Forecasting*, *31*(3), 992-1007.

Intelligence Community Assessment (2017). Assessing Russian Activities and Intentions in Recent US Elections. 6 Jan. 2017. Retrieved at http://www.dni.gov/files/documents/ICA_2017_01.pdf

International Telecommunication Union (2013). "Measuring the Information Society, 2013" Available in <http://www.itu.int/dms_pub/itu-d/opb/ind/D-IND-ICTOI-2013-SUM-PDF-E.pdf>

Jungherr, A., Jürgens, P., & Schoen, H. (2012). Why the pirate party won the German election of 2009 or the trouble with predictions: A response to Tumasjan, A., Aprenger, T.O., Sander, P.G., & Welpe, I.M. "Predicting elections with Twitter: What 140 characters reveal about political sentiment". *Social science computer review*, *30*(2), 229-234.

Katz, D., & Cantril, H. (1937). Public Opinion Polls. *Sociometry, 1*(1/2), 155-179.

Katz, E., & Lazarsfeld, P. F. (1966). *Personal Influence, The part played by people in the flow of mass communications*. London: Transaction Publishers.

Karpf, David (2012). *The MoveOn Effect: The Unexpected Transformation of American Political Advocacy*. New York: Oxford University Press.

Keeter, S., Kennedy, C., Dimock, M., Best, J., & Craighill, P. (2006). Gauging the impact of growing nonresponse on estimates from a national RDD telephone survey. *Public Opinion Quarterly*, 70, 759–779.

Kim, Annice E.; Heather M. Hansen, Joe Murphy, Ashley K. Richards, Jennifer Duke, Jane A. Allen (2013). Methodological Considerations in Analyzing Twitter Data. *Journal of the National Cancer Institute Monographs* (47): 140-146.

King, Gary; Keohane, Robert O.; & Verba, Sidney (1994(. *Designing Social Inquiry: Scientific Inference in Qualitative Research.* Princeton: Princeton University Press.

Kitschelt, Helbert. (2000). "Linkages between citizens and politicians in democratic polities." *Comparative Political Studies*, 33:6-7. August-September.

Kluver, Randolph; Nicholas Jankowski; Kirsten Foot & Steven Schneider (2007). *The Internet and National Elections: A Comparative Study of Web Campaigning.* Oxon: Routledge.

Kohut, A. (1986). Rating the Polls: The Views of Media Elites and the General Public. *The Public Opinion Quarterly, 50*(1), 1-10.

Kohut, A., Keeter, S., Doherty, C., Dimock, M., & Christian, L. (2012). Assessing the representativeness of public opinion surveys. Pew Research Center, Washington, DC.

Kouloumpis, E., Wilson, T., & Moore, J. D. (2011). Twitter sentiment analysis: The good the bad and the omg!. *Icwsm*, *11*(538-541), 164.

Kuru, O., Pasek, J., & Traugott, M. W. (2017). Motivated Reasoning in the Perceived Credibility of Public Opinion Polls. *Public Opinion Quarterly*, *81*(2), 422-446.

Laakso, Markky; & Taagepera, Rein. (1979). 'Effective' number of parties: a measure with application to West Europe. *Comparative Political Studies*, v. 12, n. 1.

La Nación (2012, May 30). Hugo Chávez llegó a los 3 millones de seguidores en Twitter y regaló una casa. *La Nación*. Retrieved from http://www.lanacion.com.ar

La Nación (2014, January 28). Encuestas. *La Nación*. Retrieved from http://www.nacion.com/opinion/editorial/Encuestas_0_1393260678.html

Ladd, E. C. and J. Benson (1992). The Growth of News Polls in American Politics, in T. E.

Mann & G. R. Orren (Eds.), *Media Polls in American Politics*. Washington, DC: Brookings.

Lazer, David & Radford, Jason (2017). Data ex Machina: Introduction to Big Data. *Annual Review of Sociology*, 43, 19-39.

Lijphart, Arend (1971). "Comparative politics and the comparative method." *American Political Science Reveiw.* 65:3.

Lin, C., & He, Y. (2009, November). Joint sentiment/topic model for sentiment analysis. In *Proceedings of the 18th ACM conference on Information and knowledge management* (pp. 375-384). ACM.

Lu, Gongyuan; Li, Qiudan; & Liao, Stephen Shaoyi (2012). A graph-based action network framework to identify prestigious members through member`s prestige evolution. *Decision Support Systems*, 53(1).

Lusinchi, D. (2012). "President" Landon and the 1936 "Literary Digest" Poll: Were Automobile and Telephone Owners to Blame? *Social Science History, 36*(1), 23-54.

Macridis, Roy C.; Richard Cox. 1953. "Research in Comparative Politics," *American*

Political Science Review, 47, September.

Mahrt, Merja; Michael Scharkow. 2013. "The Value of Big Data in Digital Media Research." *Journal of Broadcasting & Electronic Media* 57:1.

Mansfield, E. R., & Helms, B. P. (1982). Detecting multicollinearity. *The American Statistician*, 36(3a), 158-160.

Marsh, Catherine (1985). Back on the Bandwagon: The Effect of Opinion Polls on Public Opinion. *British Journal of Political Science*, 15 (1), 51-74.

Mei, Q., Ling, X., Wondra, M., Su, H., & Zhai, C. (2007, May). Topic sentiment mixture: modeling facets and opinions in weblogs. In *Proceedings of the 16th international conference on World Wide Web* (pp. 171-180). ACM.

Metaxas, P. T., Mustafaraj, E., & Gayo-Avello, D. (2011, October). How (not) to predict elections. In *Privacy, Security, Risk and Trust (PASSAT) and 2011 IEEE Third Inernational Conference on Social Computing (SocialCom), 2011 IEEE Third International Conference on* (pp. 165-171). IEEE.

McAllister, Ian & Studlar, Donley T. (1991). Bandwagon, Underdog, or Projection? Opinion Polls and Electoral Choice in Britain, 1979-1987. Journal of Politics (53) 3, 720-

Mccombs, Maxwell E.; & Shaw, Donald L. (1972). The Agenda-Setting Function Of Mass Media. *Public Opinion Quarterly*; 36 (2): 176-187.

Mehl, M. R., & Gill, A. J. (2010). "Automatic text analysis with LIWC and Wmatrix." In S. D. Gosling & J. A. Johnson, eds. *Advanced methods for conducting online behavioral research*. Washington, DC: American Psychological Association.

Mendonça, Ricardo Fabrino & Ercan, Selen A. (2015). Deliberation and protest: strange bedfellows? Revealing the deliberative potential of 2013 protests in Turkey and Brazil. Policy Studies, 36:3.

Metaxas, P. T., Mustafaraj, E., & Gayo-Avello, D. (2011, October). How (not) to predict elections. In *Privacy, Security, Risk and Trust (PASSAT) and 2011 IEEE Third Inernational Conference on Social Computing (SocialCom), 2011 IEEE Third International Conference on* (pp. 165-171). IEEE.

Miller, M., & Hurd, R. (1982). Conformity to AAPOR Standards in Newspaper Reporting of Public Opinion Polls. *The Public Opinion Quarterly, 46* (2), 243-249.

Miller, P. V. (1991). Which side are you on? The 1990 Nicaraguan poll debacle. *Public*

Opinion Quarterly, 55 (2), 281.

Mislove, A., Lehmann, S., Ahn, Y. Y., Onnela, J. P., & Rosenquist, J. N. (2011). Understanding the Demographics of Twitter Users. In *Proceedings of the Fifth International AAAI Conference on Weblogs and Social Media – ICWSM*, *11*, 5th.

Murphy, J.; Link, M. W.; Childs, J. H.; Tesfaye, C. L.; Dean, E.; Stern, M.; Pasek, J.; Cohen, J.; Callegaro, M.; & Harwood, P. (2014). Social media in public opinion research: executive summary of the Aapor task force on emerging technologies in public opinion research. *Public Opinion Quarterly*, 78(4), 788-794.

Muthiah, S., Huang, B., Arredondo, J., Mares, D., Getoor, L., Katz, G., & Ramakrishnan, N. (2015, January). Planned Protest Modeling in News and Social Media. In *AAAI* (pp. 3920-3927).

Mutz, Diana (1992). Impersonal Influence: Effects of Representations of Public Opinion on Political Attitudes. *Political Behavior* 14 (2), 89-122.

Mutz, Diana (1995). Efects of Horse-Race Coverage on Campaign Cofers: Strategic Contributing in Presidential Primaries. *Journal of Politics*, 57 (4), 1015-1042.

Nadeau, Richard; Cloutier, Edouard; Guay, J-H. (1993). New Evidence About the Existence

of a Bandwagon Effect in the Opinion Formation Process. *International Political Science Review*, 14 (2).

Nickerson, David W. & Rogers, Todd (2014). Political Campaigns and Big Data. *Journal of Economic Perspectives*, 28 (2), 51-74.

Noelle-Neumann, E. (1974). The Spiral of Silence: A Theory of Public Opinion. *Journal of Communication*, 24 (2), 43-51.

Noelle-Neumann, E. (1977). Turbulences in the Climate of Opinion: Methodological Applications of the Spiral of Silence Theory. *Public Opinion Quarterly*, 41 (2), 143-158.

Noelle-Neumann, E. (1979). Public Opinion and the Classical Tradition: A Re-Evaluation. *Public Opinion Quarterly*, 43 (2), 143-156.

Noelle-Neumann, E. (1991). The Theory of Public Opinion: The Concept of the Spiral of Silence. *Annals of the International Communication Association*, 14 (1).

Norden, Lawrence & Vandewalker, Ian (2017). *Securing Elections from Foreign Interference.* Brennan Center for Justice.

Nova Paraguay (2013a). Enrique Taka Chase: "Esa senora nos desmerita a todos". Nova Paraguay, February 14, Retrieved at http://www.novaparaguay.com/nota.asp?n=2013_2_14&id=19434&id_tiponota=11

Nova Paraguay (2013b). Consultora niega haber realizado sondeo que ubica a Mario Ferreiro en tercer lugar. Nova Paraguay, February 27. Retrieved at http://www.novaparaguay.com/nota.asp?n=2013_2_27&id=19506&id_tiponota=4

Navazio, Robert. (1987). An experimental approach to bandwagon research. *Public Opinion Quarterly*, 41 (2), 217-225.

Neustadt, R. E. (1960). *Presidential power* (p. 33). New York: New American Library.

O'Connor, B., Balasubramanyan, R., Routledge, B. R., & Smith, N. A. (2010). From tweets to polls: Linking text sentiment to public opinion time series. Int. Conf. Weblogs and Social Media, 4th, Washington, May 23–26, 11, 122-129.

Olson, Mancur (1971). *The Logic of Collective Action: public goods and the theory of groups*. Cambridge: Harvard University Press.

Paraguay.com (2013). Ati Snead niega autoria de sondeo que da ventaja a Alegre.

Paraguay.com, January 30. Retrieved at http://www.paraguay.com/nacionales/atisnead-niega-autoria-de-sondeo-que-da-ventaja-a-alegre-90990

Pak, A., & Paroubek, P. (2010, May). Twitter as a corpus for sentiment analysis and opinion mining. In *LREc* (Vol. 10, No. 2010).

Pérez-Liñán, A. (2001). Neoinstitutional accounts of voter turnout: moving beyond industrial democracies. *Electoral Studies*, 20(2), 281-297

Petersen, T. (2012) Regulation of Opinion Polls: A Comparative Perspective. Holtz-Bacha, C. & Stromback, J. (Eds.) *Opinion Polls and the Media: Reflecting and Shaping Public Opinion*. London: Palgrave MacMillan

Pew Research Internet Project (2014). "Social Media Update 2013: Twitter users." http://www.pewinternet.org/2013/12/30/social-media-update-2013/twitter-users/

Powell, G. B. (1981). Party systems and political system performance: Voting participation, government stability and mass violence in contemporary democracies. *American Political Science Review*, *75*(4), 861-879.

Przeworski, Adam & Teyne, Henry (1970). *The logic of comparative social inquiry.* New York: Wiley Interscience.

Putnam, Robert (1995). Bowling Alone, Revisited. *The Journal of Democracy*, 6(1):65.

Reynolds, A., Reilly, B., & Ellis, A. (2008). *Electoral system design: The new international IDEA handbook*. International Institute for Democracy and Electoral Assistance.

Roberts, Kenneth M.; & Wibbels, Erik (1999). Party systems and electoral volatility in Latin America: A test of economic, institutional, and structural explanations. *The American Political Science Review*, 93(3): 575-590.

Roper, B. (1986). Evaluating Polls With Poll Data. *The Public Opinion Quarterly, 50*(1), 10-16.

Roncarolo, F. (2008). News Coverage of Elections in the Long Transition of Italian Democracy, in J. Strömbäck & L. L. Kaid (Eds.), *The Handbook of Election News Coverage Around the World.* New York: Routledge.

Rosenstone, Steven J (1983). *Forecasting Presidential Elections.* New Haven: Yale University Press.

Rosenstone, Steven & Hansen, John (1993). Mobilisation, Participation and Democracy in America. New York: Macmillan.

Sanchez, G., & Sanchez, M. G. (2012). Package 'plsdepot'. *Partial Least Squares (PLS) Data Analysis Methods, v. 0.1*, *17*.

Schemer, Christian; Kühne, Rinaldo; & Matthes, Jörg (2014). "The Role of Measurement Invariance in Comparative Communication Research." In María José Canel; Katrin Voltmer, eds., *Comparing Political Communication across Time and Space: New Studies in an Emerging Field*. Hampshire, UK: Palgrave MacMillan.

Schlozman, Kay Lehman; Verba, Sidney & Brady, Henry E. (2010). Weapon of the Strong? Participatory Inequality and the Internet. *Perspectives on Politics*, 8(2): 487-509.

Schmidt, C. (2012). Trending now: Using Social Media to Predict and Track Disease Outbreaks. *Environmental Health Perspectives, 120* (1), A30-A33.

Searles, Kathleen; Ginn, Martha Humphries; & Nickens, Jonathan (2016). For Whom the Poll Airs: Comparing Poll Results to Television Poll Coverage . *Public Opinion Quarterly*, 80 (4), 943-963.

Seligson, Mitchell (2005). Improving the Quality of Survey Research in Democratizing Countries. *Political Science and Politics*, 38 (1), 52-56.

Shugart, M. S., & Taagepera, R. (1994). Plurality versus majority election of presidents: A proposal for a “double complement rule”. *Comparative Political Studies*, 27 (3), 323-348.

Simon, Herbert (1954). Bandwagon and Underdog Effects and the Possibility of Election Predictions. *Public Opinion Quarterly*, 18 (3), 245-253.

Simon, Pablo (2016). Heterogeneity in turnout rates across regions and the nationalization of party systems. *Acta Politica*, 51(2): 173-193.

Simon, D.M. & Ostrom, C.W. (1988). The Politics of Prestige: Popular Support and the Modern Presidency. *Presidential Studies Quarterly*, 18(4).

Singer, E. (2006). Introduction: Nonresponse bias in household surveys. *Public Opinion Quarterly*, 70 (5), 637-645.

Skalaban, A. (1988). Do the Polls Affect Elections? Some 1980 Evidence. *Political Behavior*, 10 (2), 136-150.

Smith, Noah. (2010). Computer Analysis of Twitter Sentiments Yields Results Similar to Public Opinion Polls. *Science Daily*, Carnegie Mellon University, May.

Steeh, C., Kirgis, N., Cannon, B. & DeWitt, J. (2001). Are they really as bad as they seem? Nonresponse rates at the end of the twentieth century. *Journal of Official Statistics*, 17 (2), 227–248.

Strom, Kaare; & Muller, Wolfgang (1999). "Political Parties and Hard Choices." In Kaare Strom and Wolfgang Muller, eds., *Policy, Office, or Votes? How Political Parties in Western Europe Make Hard Decisions.* Cambridge: Cambridge University Press.

Squire, P. (1988). Why the 1936 Literary Digest Poll Failed. *The Public Opinion Quarterly,* 52 (1), 125-133.

St. Louis, C., & Zorlu, G. (2012). Can Twitter predict disease outbreaks? *BMJ: British Medical Journal,* 344 (7861), 24-25.

Stevenson, D. (2017). *Cyber: Changing the landscape of foreign intervention in democratic elections.* School of Advanced Air and Space Studies, Air University Maxwell AFB United States.

Strömbäck, J. (2009). Vox Populi or Vox Media? Opinion Polls and the Swedish Media, 1998–2006, *Javnost – The Public*, 16(3), 55–70.

Strömbäck, J., & Kaid, L. L. (Eds.). (2008). *The Handbook of Election News Coverage Around the World*. London: Routledge, pp. 421-431.

Subrahmanian, V. S.; Azaria, A.; Durst, S.; Kagan, V.; Galstyan, A.; Lerman, K.; Zhu, L.; Ferrara, E.; Flammini, A.; & Menczer, F. (2016). The Darpa Twitter bot challenge. *Computer*, 49(6), 38-46.

Sykes, J. (2012). Predicting Electoral Outcomes with SAS® Sentiment Analysis and SAS® Forecast Studio. In *SAS Global Forum,* 131.

Taboada, M. (2016). Sentiment analysis: An overview from linguistics. *Annual Review of Linguistics*, *2*, 325-347.

Tiffen, R. (2008). Australia: Gladiatorial Parties and Volatile Media in a Stable Polity, in J. Strömbäck and L. L. Kaid (Eds.), *The Handbook of Election News Coverage Around the World.* New York: Routledge.

Tolbert, Caroline J.; & McNeal, Ramona. (2003). Unraveling the Effects of the Internet on Political Participation? *Political Research Quarterly*, 56(2): 175-185.

Tourangeau, R. & Plewes, T.J. (2013). Nonresponse in social science surveys: a research agenda. The National Academies Press.

Traugott, M. W. (2005). The Accuracy of the National Preelection Polls in the 2004 Presidential Election, *Public Opinion Quarterly*, 69 (5), 642–654.

Treré, E. (2015). Reclaiming, proclaiming, and maintaining collective identity in the #YoSoy132 movement in Mexico: an examination of digital frontstage and backstage activism through social media and instant messaging platforms. *Information, Communication & Society*, *18*(8), 901-915.

Trippi, Joe (2004). *The Revolution Will Not Be Televised: Democracy, the Internet and the Overthrow of Everything*. New York: Regan Books.

Tryggvason, Per Oleskog & Strömbäck, Jesper (2017). Fact or Fiction? Investigating the quality of opinion poll coverage and its antecedents. *Journalism Studies*, 18, 1-20.

Tumasjan, Andranik; Sprenger, Timm O.; Sandner, Philipp G.; & Welpe, Isabell M. (2010). Predicting Elections with Twitter: What 140 Characters Reveal about Political Sentiment. In *Proceedings of the Fourth International AAAI Conference on Weblogs and Social Media*.

Twitter (2016). Company. Retrieved at https://about.twitter.com/pt/company

Twitter (2017). Update: Russian Interference in 2016 US Election, Bots, & Misinformation. *Twitter Public Policy*, September 28. Retrived at https://blog.twitter.com/official/en_us/topics/company/2017/Update-Russian-Interference-in-2016--Election-Bots-and-Misinformation.html

United Nations (2012). "E-Government Survey 2012: E-Government for the People, 2012." Available in: <http://unpan1.un.org/intradoc/groups/public/documents/un/unpan048065.pdf>

Vaccari, Cristian (2013). *Digital Politics in Western Democracies.* Baltimore: Johns Hopkins University Press.

Valenzuela, Sebastián & Arriagada, Arturo (2011). Politics without Citizens? Public Opinion, Television News, the President, and Real-World Factors in Chile, 2000-2005. *International Journal of Press/Politics*, 16(3).

Valenzuela, Sebastián; Arriagada, Arturo; Scherman, Andrés (2012). The Social Media Basis of Youth Protest Behavior: The Case of Chile. *Journal of Communication*, 62(2).

Van der Meer, Tom W G; Van Deth, Jan W; & Scheepers, Peer L. H. The Politicized Participant: Ideology and Political Action in 20 Democracies. *Comparative*

Political Studies, 42(11): 1426-1457.

Vizcaíno, Irene; Ruiz Ramón, Gerardo; Oviedo, Esteban (2014, March 5). Johnny Araya desiste de candidatura por la Presidencia. *La Nación*. Retrieved from http://www.nacion.com

Wang, W., Rothschild, D., Goel, S., & Gelman, A. (2015). Forecasting elections with non-representative polls. *International Journal of Forecasting*, *31*(3), 980-991.

Wasserman, S. & Faust, K. (1994). *Social Network Analysis: Methods and Applications.* Cambridge: Cambridge University Press.

Weedon, J.; Nuland, W.; Stamos, A. (2017). Information Operations and Facebook. Facebook. Retrieved at https://fbnewsroomus.files.wordpress.com/2017/04/facebook-and-information-operations-v1.pdf

Welp, Yanina (2015). Todo lo solido se desvanece en Twitter: Analisis del movimiento social #yosoy132. *Postdata*, 20:2.

Weimann, G. (1990). The Obsession to Forecast: Pre-Election Polls in the Israeli Press, *Public Opinion Quarterly*, 54(3), 396–408.

Weisberg, H. F. (2008). The Methodological Strengths and Weaknesses of Survey Research, in W. Donsbach & M. W. Traugott (Eds.), *The Sage Handbook of Public Opinion Research*. London: Sage.

West, D. (1991). Polling Effects in Election Campaigns. *Political Behavior, 13*(2), 151-163.

Whitmeyer, J. (2007), Prestige from the Provision of Collective Goods. *Social Forces*, 85(4).

Wiesehomeier, Nina, & Benoit, Kenneth (2009). Presidents, parties, and policy competition. *The Journal of Politics*, *71*(4), 1435-1447.

Wood, S. (2013). Prestige in world politics: History, theory, expression. *International Politics*, *50*(3), 387-411.

Wortham, Jenna (2016). How an Archive of the Internet Could Change History. The New York Times Magazine, June, 21, 2016. Retrieved on http://www.nytimes.com

Wright, G. (1993). Errors in Measuring Vote Choice in the National Election Studies, 1952-88. *American Journal of Political Science, 37*(1), 291-316.

Yang, J., & Counts, S. (2010). Predicting the Speed, Scale, and Range of Information

Diffusion in Twitter. *ICWSM*, *10*, 355-358.

Zaller, John (1992). *The Nature and Origins of Mass Opinion.* Cambridge: Cambridge University Press.

Zeitzoff, T. (2011). Using Social Media to Measure Conflict Dynamics: An Application to the 2008-2009 Gaza Conflict. *The Journal of Conflict Resolution, 55*(6), 938-969.

Zhang, B., Mildenberger, M., Howe, P. D., Marlon, J., Rosenthal, S., & Leiserowitz, A. (2017). Quota sampling using Facebook advertisements can generate nationally representative opinion estimates. Working paper, Department of Political Science, Yale University. Retrieved July 5, 2017 from http://qssi.psu.edu/new-faces-papers-2017/zhang-quota-sampling-using-facebook-advertisements.

Zhang, C., & Paxson, V. (2011). Detecting and analyzing automated activity on Twitter. In *Passive and Active Measurement* (pp. 102-111). Springer Berlin/Heidelberg.