Revista Sociedade e Cultura
ISSN: 1415-8566
ISSN: 1980-8194
Universidade Federal De Goias (UFG)

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Revista Sociedade e Cultura, vol. 25, e70812, 2022
Universidade Federal De Goias (UFG)

DOI: https://doi.org/105216/sec.v25.70812

Available in: https://www.redalyc.org/articulo.oa?id=70373170005

Do — and why do — people interact with politicians on social media? Evidences from Brazilian state level elections

¿La gente interactúa — y por qué — con los políticos en las redes sociales? Evidencias de elecciones estatales brasileñas

As pessoas interagem — e por que — com políticos nas mídias sociais? Evidências das eleições estaduais brasileiras

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Abstract: This article presents the results of the analysis of Facebook campaigning of 140 candidates who ran for governor of the 27 Brazilian federation units during the state-level elections. Following Vaccari and Nielsen's (2013) analytical framework, we collected the total amount of Facebook posts' contexts and interactions of all candidates for governor, to propose an advanced approach to their methodology. We describe the frequency distribution of attention that each candidate generated and use statistical regression to analyze the decisive factors for that amount of attention. In general, the results showed very active digital campaigning. In the regression model, a competitive candidate and the candidate's number

of press citations were the most predictive factors. The study confirmed the results the previous literature has achieved in other contexts as well.

Keywords: Elections. Electoral campaign. Social media. Facebook. Brazil.

Resumen: Este artículo presenta los resultados de los análisis de las campañas en Facebook de 140 candidatos que se postularon a gobernador de las 27 unidades de la federación brasileña durante las elecciones estatales. Siguiendo el marco analítico de Vaccari y Nielsen (2013), recogimos la cantidad total de contexto de Facebook y las interacciones de todos los candidatos a gobernador, para proponer un avance de su enfoque metodológico. Describimos la distribución de frecuencia de la atención que generó cada candidato y utilizamos la regresión estadística para analizar los factores indicadores de esta cantidad de atención. En general, los resultados mostraron una campaña digital muy activa. En el modelo de regresión, ser un candidato competitivo y el número de citas en la prensa del candidato fueron los factores más predictivos. El estudio confirma los resultados obtenidos por la literatura previa en otros contextos.

Palabras clave: Elecciones. Campaña electoral. Redes sociales. Facebook. Brasil.

Resumo: Este artigo apresenta os resultados das análises das campanhas no Facebook de 140 candidatos que se candidataram a governador das 27 unidades da federação brasileira durante as eleições estaduais. Seguindo a estrutura analítica de Vaccari e Nielsen (2013), coletamos a quantidade total de contexto e interações das postagens no Facebook de todos os candidatos a governador, para propor um avanço de sua abordagem metodológica. Descrevemos a distribuição da atenção que cada candidato gerou e usamos regressão estatística para analisar os fatores preditivos para essa quantidade de atenção. Em geral,

os resultados mostraram uma campanha digital muito ativa. No modelo de regressão, ser candidato competitivo e número de citações da imprensa foram os fatores mais preditivos. O estudo confirma os resultados alcançados pela literatura anterior em outros contextos.

Palavras-chave: Eleições. Campanha eleitoral. Mídia social. Facebook. Brasil.

Data de recebimento: 09/11/2021
Data de aprovação: 03/05/2022

Introduction

The latest Brazilian electoral campaigns were characterized by the massive candidate use of the Internet as a communication tool, especially of social media. The 2018 elections consolidated this trend. At the time, virtually all candidates running for executive positions and the clear majority of those running for legislative seats used some social media (especially Facebook and Twitter) as a tool to interact with citizens (BRAGA; CARLOMAGNO, 2018). Therefore, the point is not whether candidates use digital technologies as a campaign tool, but how they use them and what are the use patterns and impacts of those e-campaigning tools the organization of the elections.

We analyze the pattern of interactions that occurred on the Facebook pages of 140 candidates for governor of Brazil's 26 states plus the Federal District, during the first round of the 2014 elections, and test its determinants. This research seeks to answer two questions: a) does the political elite succeed in using digital tools to engage supporters and potential voters? b) What are the determinants of candidates' online popularity in Brazilian elections?

The answers to these questions potentially help us to understand: i) the behavior of the political elite; ii) which communication resources are used in electoral campaigns; iii) citizen and voter behavior and their interest — or indifference — in politics on social media.

While the understanding of the role of the Internet in elections has come a long way in recent years (BARNARD; KREISS, 2013), some specifics remain under debate. The main cleavage of the analysts, following the terms of Anstead and Chadwick (2008), occurs among those who believe that online mobilization is only a reproduction of the social forces already existing in society (the "normalizers") and enthusiasts who believe in the Internet's ability to change the social setting (the "equalizers").

Recent experiments have shown that messages sent on social media can affect voter turnout (BOND *et al.*, 2012; JONES *et al.*, 2017). However, some analysts remain reticent about the real

performance of direct contact between politicians and voters. This reasoning can be exemplified by the analysis of Vaccari and Nielsen (2013), who consider that the importance broadly reached by politicians is an outlier phenomenon, restricted to only a few very famous cases — as Barack Obama in 2008, a small number of American mid-term elections candidates in 2010 and, most recently, Donald Trump in 2016.

The criticism of the direct contact model lies in the argument that the median voter in fact does not contact or interact with politicians on these platforms. That does not imply denying the effects of the Internet on electoral behavior but verifying how these effects occur. In this perspective of analysis, the primary function of the Internet lies as a forum between individuals, not in the contact between politicians and citizens (here understood as, for example, citizens following politicians on online platforms). The question, therefore, is whether individuals contact politicians on social media or they just debate politics in general, without necessarily interacting with the candidates.

We have incorporated into the debate the analytical framework of Anstead and Chadwick (2008). The authors argue that to truly understand how this phenomenon occurs we should consider the institutional factors that can lead to distinct configurations regarding the use of the Internet in politics. Although Anstead and Chadwick present their model considering a comparative analysis— which is not the case here since we only focus on Brazil—, we seek to follow their assertions and insights. Therefore, we will consider the institutional, political, and contextual factors in our analysis, so to help us understand the different elements that make some politicians get more attention on social media than others.

For that purpose, we will construct an analytical model with 27 variables regarding four groups: 1) social variables at the state level; 2) competition environment (state level); 3) identity variables of candidates/parties; 4) contextual campaign variables (candidate level). We will specify those variables in the methods section.

Initially, we intend to test the hypothesis argued by Vaccari and Nielsen (2013), who support that the direct contact between

candidates and voters is an outlier phenomenon. However, as we do believe in the opposite statement, our first hypothesis is:

• Hypothesis 1: Contrary to Vaccari and Nielsen's argument, the general level of interactions on candidates' pages will be higher than indicated by previous research. Although there is some asymmetry in the online citizen attention to the politicians, they do interact on Facebook — through a minority "digitally active" and not through a "direct representation on a large scale" — as expected by Vaccari and Nielsen, and others.

In data collection, there is an important aspect to notice. While Vaccari and Nielsen (2013) used the number of followers as a proxy, we collected the real number of individuals' interactions on those pages. In the third section, we will discuss the details of what is considered "interaction" and how this may affect the research outputs.

Our second hypothesis, based on Chadwick (2013), will test how social and political factors impact the levels of network utilization by politicians.

• Hypothesis 2: Contextual aspects and campaign environment elements are the decisive factors for the online interactions' extents, rather than socioeconomic or identity variables.

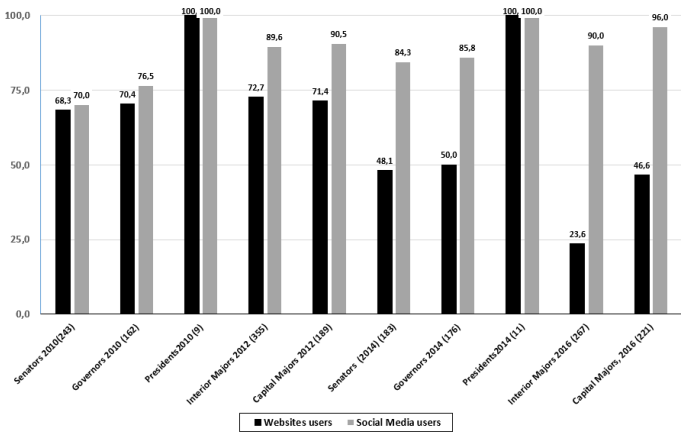
The article is structured as follows. In the next section, we present a brief overview of the Brazilian studies' panorama on the subject matter, as well as primary data on the growth of Internet use by Brazilian political actors. In the following section, we define the theoretical concepts with which we dialogue. In the methodological section, we present the independent variables of our analytical model. In sequence, we show the statistical results. Finally, in the last section, we present our analyses and findings from the study.

Brazilian Panorama of The Social Media use in Politics

Many recent studies have been analyzing the possible impacts of the social media use on the very concept of democracy, the political representation (COLEMAN, 2005; GILMORE, 2012; BIMBER, 2014; LEV-ON; HALEVA-AMIR, 2016), and on the election campaigns organization among other issues. In Brazil, latter-day studies have shown that there is a growing use of these communication tools (BRAGA; CARLOMAGNO, 2018; ALVES; TAVARES; ALBUQUERQUE, 2019). Several evidences demonstrate that social media and, among them, especially Facebook, are tools highly used by candidates in Brazilian election campaigns. Since 2002, when studies began to adopt more systematic measurements of the use of websites and social media by candidates (BRANDÃO JUNIOR, 2008), there has been a major use expansion of such tools in statewide elections although the expansion has not been linear.

The increased use of social media campaigning can be verified from the last elections figures, including a decrease on the use of websites (BRAGA; CARLOMAGNO, 2018). The change is a result of the easier access to social media. Parties and candidates not provided with political resources and regions where the electorate is less digitally included benefit from that. For example, longitudinal data available since the 2002 elections demonstrates such evolution in Brazil.

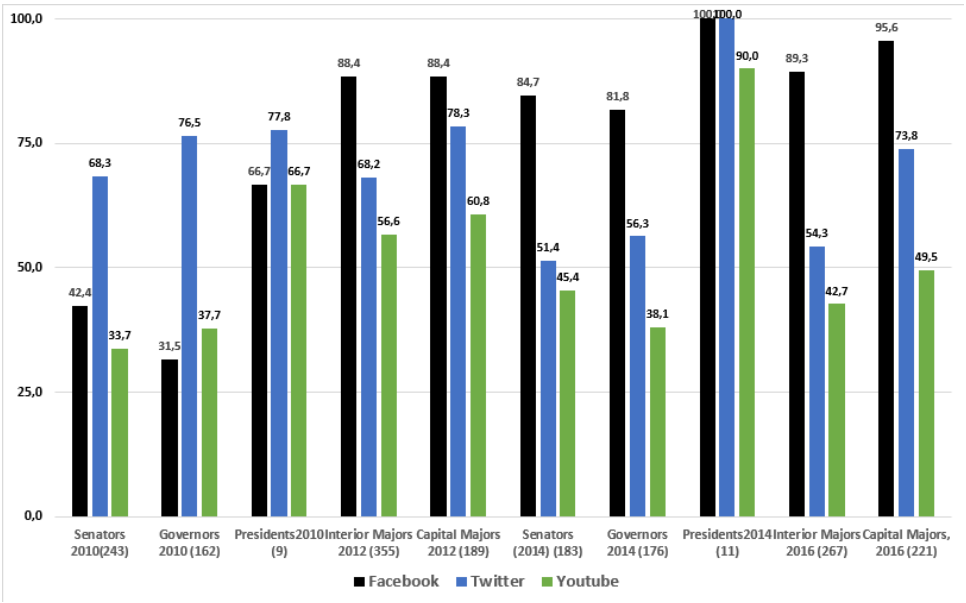
Figure 01 – The use of websites and any type of social media by majority candidates in electoral campaigns (n = 1991 candidates)



Source: adapted from Braga and Carlomagno (2018).

Another aggregate indicator of the widespread use of social media in Brazilian elections campaigning is the frequency with which the various candidates are using social media such as Facebook, Twitter, and YouTube channel.

Figure 02 – Frequency of use of social medias (n = 1515)



Source: adapted from Braga and Carlomagno (2018).

Social media started to become a campaigning resource emphatically used only in 2010 when the Brazilian electoral law regulated its candidate use (MARQUES; SAMPAIO; AGGIO, 2013). Since then, there has been a sound progression in the use of social media campaigning. Indeed, there is a noted preference for Facebook among candidates, contrary to analysts' expectations that Twitter would be the preferred social media regarding its declaratory communication ability (JUNGHERR, 2016).

There was a strong decline in the use of websites and Twitter in the last elections campaigning. The website use decrease may be attributed to the proliferation of small party candidates, who usually lack the political resources to heavily invest in online campaigning.

Concerning Twitter use, we report a sharp decline in its general audience in Brazil, where its users mostly come from the class 'A' social-economic segment. Also, platforms such as Facebook and, recently, Instagram, are the most used in Brazil by citizens — therefore, politicians looking for votes seek to be on these media, where their voters are.

The Concept of Interaction

Here we resume the ideas of Cristian Vaccari and Rasmus Nielsen's provocative studies (VACCARI; NIELSEN 2013; NIELSEN; VACCARI, 2014). Their central research question inquires: what is the attention given by citizens to politicians online? Despite that, what Vaccari and Nielsen actually measure is a simple sum of followers ('likes' on Facebook, 'followers' on Twitter) each candidate gets. They do not measure the actual interaction or attention online politicians acquire, but rather use a proxy of that, under the idea that if there are no followers, there is no interaction or citizens' attention to politicians.

The issue results from Vaccari and Nielsen's (2013) criticism of the idea that digital technologies would cause incremental changes in the political representation process to the point of the emergence of a large-scale direct representation, as advocated by Stephen Coleman (COLEMAN, 2005; COLEMAN; MOSS, 2008). In the absence of such a change in the political representation process, Vaccari and Nielsen (2013) conclude that digital tools are unimportant in electoral campaigning, except as a forum for indirect debate on politics rather than direct contact with voters.

Nonetheless, we argue that the adoption of digital technologies is not intended to generate a large-scale permanent interaction with citizens (according to Vaccari and Nielsen's interpretation of the "direct representation" model). On the other hand, digital tools can establish closer ties with the most loyal followers ('the converted') and thus favor the politicians in reaching the general public through them (VISSERS, 2009), establishing with these

supporters what some authors call "controlled interaction" (STROMER-GALLEY, 2014).

More recently, other analysts have shown that the presence of politicians in digital media and their interaction with supporters, during the exercise of their mandate, has been an important mechanism for informational scheduling and "agenda setting" of issues to be debated in parliament (ALMEIDA, 2017). In this perspective, measuring the number of followers and also the amount of interaction with those followers is a distinguishable procedure. In other words, even though some politicians may accumulate only a few followers, do they interact? We believe that this is precisely what Vaccari and Nielsen (2013) intended to measure and at the same time illustrates Coleman's (2005) idea of direct representation.

The idea of interaction is an important concept to clarify. We acknowledge two basic meanings of the concept of interaction: an *objective* sense and a *substantive* sense. The *objective sense* is broad and general and directly reports to the idea of attention or connection used by Vaccari and Nielsen (2013), among several other authors. It is synonymous with Facebook "engagement", i.e., interaction in the formal sense, measured by units such as 'likes', 'comments', and 'shares'. The *substantive sense* is strict and relates exactly to the types of interaction that occur — especially in 'comments'.

This research approach, which usually incorporates studies on online deliberation, appreciates the forms and different levels of interaction among actors on digital platforms. Ranging from a top-down monologue to a public debate (FERBER; FOLTS; PUGLIESE, 2007; LILLEKER, JACKSON, 2009), this approach considers the dialogue and potential conversation regardless of whether the number of formal interactions is high or low. Those are different research points of view. Vaccari and Nielsen's (2013) research subject — like ours — is situated on the first approach type. The object of our analysis is the interactions in their formal meaning.

Despite that, there are two important distinctions between our work and Vaccari and Nielsen's (2013) study. First, they performed a comparative study on Facebook, Twitter, YouTube, and websites while our research object is only the campaigning behavior on Facebook. The reason why we opted for only studying the interactions on Facebook is due to its prominence among candidates and voters in Brazil (as noted previously).

Second, the authors studied legislative elections campaigning, whereas we research executive elections campaigning. Although the United States voting system for the House of Representatives and the Brazilian voting system for the governor position are both ruled by the majority of votes, it is reasonable to assume that the nature of the office influences the amount of attention candidates get online. This implies some limits in a comparative analysis of those studies without, however, invalidating the comparison effort.

Methods, Data and Analytical Model

In 2014, 176 candidates started the electoral race for governor of the 27 Brazilian federation units — an average of 6.51 candidates per unit. The electoral justice disqualified ten candidates throughout the campaign period. Consequently, 166 candidates actually completed the electoral race. Of those, 140 candidates were present on Facebook even though 26 did not use[1] the platform at all.

All posts and their statistics of formal interactions (as prior definition, measured by the total amount of 'likes', 'comments' and 'shares'), as well as the contents of those posts (a subject not discussed in this article), presented on the 140 candidates' Facebook pages were collected using the *netvizz* application (RIEDER, 2013).

1 61.5% (16 cases) of which not even used the platform were candidates from "micro-parties", which indicates its tendency to not use these tools.

Our research methodology was designed to explore some of Facebook's important "affordances" that distinguish it from other digital media. Halpern and Gibbs (2013), for example, argue that different social networks have different affordances that shape discussion networks and influence deliberation. Analyzing two specific variables — identifiability and access to information on the network — the authors compare the political discussion in two networks of great capillarity.

On Facebook, users have a public profile, where all activities such as messages, posts, links, and interactions are, most of the time, visible to a large number of individuals. That is, individual characteristics such as worldview, political-ideological inclinations, relationships, personal interests, and friends form a framework in which visibility is a relatively inherent factor in this network. Thus, the possibilities of using Facebook (low frequency of anonymity, easier identification of the authors of the messages and their social networks), increase the quality of deliberation in the digital environment, with more polished, more civil, and more justified posts, providing a higher quality of interaction between relevant political actors, an idea that is reinforced by Waterloo in his studies on the expression of ideas in different media (HALPERN; GIBBS, 2013; WATERLOO *et al.*, 2017).

We collected and analyzed data from the period between July 5th and October 3rd — the official start and end dates of the 2014 election campaign (first round). In the end, we produced a database with 55,452 registries (the total amount of posts on the 140 candidates' Facebook pages presented during the period).

We aim to identify the determinants of online popularity of candidates: what are the aspects considered the predictive factors? Why do some candidates have more or less online popularity? Accordingly, we chose independent variables from four groups: 1) social variables at the state level; 2) competition environment at the state level; 3) identity variables of candidates/parties; 4) contextual variables of candidate campaigning.

Identity factors are inherent to the candidate and his/her political party. Party ideology, candidate's age, and whether the party is a major player or not. Even if those factors are transitional, parties become larger or smaller and even change their ideological view, they are part of the candidate's identity.

Contextual factors, on the other hand, relate to the performance of the candidate depending on the circumstances. For instance, campaign resources, media coverage, whether or not currently holding office, etc. Although these factors are also measured at the individual level, they do not necessarily refer to the candidate's identity. Social factors measured at the state level, in turn, are divided between social indicators (referring to the electorate) and features of the electoral competition at the time and federation unit.

We reproduce most of the variables tested by Vaccari and Nielsen (2013) and add relevant variables related to the Brazilian electoral context such as the existence of micro-parties. We believe the peculiarities of the Brazilian political system may affect the dynamics of the election campaign and the use of social media as well. In the following topic, we list the independent variables of our model, together with their meaning and data sources.

1. Social variables at the state level

(i) State education index: created from the combination of three indicators: a) *score at IDEB* (Brazilian Basic Education Development Index of the National Secretary of Education); b) *number of universities per capita*: an indicator of population in higher education, obtained from the Higher Education Census in 2012; c) *state literacy rate.* For the purpose of building the index, all the original values were standardized with z-score statistics, with mean equal to zero and standard deviation equal to one. Thus, the values are presented in terms of the mean deviation. This process allows the comparison between measurements with different ranges.

(ii) *Average household income:* obtained from the 2010 Census from the Brazilian Institute of Geography and Statistics (IBGE, 2010). The average household income is a more accurate indicator than GDP per capita because it reflects the real income of citizens and families, not distorted, for example, by market and industry earnings.

2. Competition environment at the state level:

(iii) Open seat: designates whether the dispute features one candidate currently holding office (the possibility of re-election) or if there is an open seat, i.e., the governor in office is not disputing the election.

(iv) Dispute type: designates the intensity of electoral contest — for all candidates running on it — between: 1) "safe" for disputes in which the second competitor appears far behind the first one. b) "contested race" for disputes where there is a race leader, but other competitors have the possibility to achieve him/her; c) "tight", for races with result uncertainty. We used two indicators, jointly and complementally to reach these types: a) voting polls in the week when the campaign officially began; b) the election results after the election. Competition environment variables should reveal important aspects of elections campaigning. By way of illustration, open and disputed competitions, hypothetically, can increase the interest of citizens, amplifying the candidates' online attention.

3. Identity variables of candidates/parties

(v) Major National Party: under Brazilian law, all parties are national in nature. Braga and Pimentel Jr. (2013), nonetheless, showed that few Brazilian parties have truly penetration among the national territory. The authors considered PT, PSDB, and PMDB as major national parties. PT and PSDB have been monopolizing

the presidential race since 1994 and represent the two structured lines of Brazilian politics. The other political parties are organized around them, except for PMDB, which is the biggest Brazilian party and has been the main legislative support for all federal governments in the last 30 years.

(vi) Micro-Party: In Brazil, there are 32 political parties legally registered, part of them named "nanico", a term coined in Portuguese ("micro"). In fact, until recently the effective number of parties in Brazil was around eight (GALLAGHER, 2015). Micro parties are small, unfurnished in financial resources, and lack political expression. Although there are ideological parties among the purely 'physiological' parties, micro-parties fit the criteria of social representativeness absence. One can argue that micro-parties are not in the game "for real" since they usually run the electoral race just to show up, raise ideological flags or play a supporting role for other parties. Given this, micro-parties are not essentially trying to win elections or at least truly dispute them.

The fact that major parties and micro-parties do not constitute a dichotomous variable is a significant matter to notice. In addition, there is an intermediate category, composed of mid-size parties. Those parties are generally represented in Congress and several of their politicians run ministerial cabinets or state governments. Despite the fact that mid-size parties' national performance does not define them as major players, they are not micro-parties.

Regarding the purposes of our analysis, the Brazilian micro-parties are: PCB, PEN, PTN, PRTB, PTC, PSTU, PTdoB, PMN, PCO, PPL, PHS, PSDC, PRP, PSC, PSL[2] as they hold less than 2% of representation at the Federal Chamber of Deputies.

(vii) Ideology (party): Despite that some international political science approaches consider party ideology a 'démodé' variable, Brazilian political scientists still vastly use it. Considering the

2 Remembering that this is the 2014 PSL, which until then elected only one federal deputy (its chairman, Luciano Bivar), not the party that elected the President of the Republic and huge bench in 2018. The change that took place in 2018 is explained by Bolsonaro's charismatic figure, and not by a party organization structure.

objectives of our study, we classified the parties according to the literature concepts (ZUCCO JR., 2009), under which codes range from left (1) to right (5). Left: PSOL, PSTU, PCO, PCB. Center-left: PT, PCdoB, PDT. Center: PMDB, PSDB, PSB, PPS, PV. Center-right: PSD, PP, PR, PRB, PROS, PSC, PTB, PHS, SD. Right: DEM, PMN, PRP, PRTB, PSDC, PSL, PTdoB, PTC, PTN.

(viii) Ideology (coalition): designates the ideological composition of the electoral coalition, through the same assessment criterion used to measure data on the previous variable. With that being said, a significant aspect of the categorization procedure should be noticed. If a center-left party, like PT, is in coalition with a center party, like PMDB, and also in coalition with center-right parties, the coalition is classified as "center" in the ideological spectrum. The same idea applies when a center party, PSDB, is in coalition with a right-wing party, DEM, and also in coalition with center-right parties, the coalition is classified as "center-right" or "right".

(ix) Political leadership: Designates whether the candidate is a political leader within his/her party. In this respect, Marques, Aquino and Miola (2014), analyzed the Twitter pages of Brazilian federal deputies and concluded that this is an important determinant of online politician popularity in the Brazilian case. At the same time, we adopt a broader view since our variable considers not only formal positions of leadership held in Congress or the party, but also the candidates' political careers.

(x) Candidate's age. Indicates the candidates' age and helps identify any generational differences.

4. Contextual variables of candidate campaigning

(xi) Incumbent: the concept of incumbent refers to the governors who are currently holding office and, at the same time, seeking re-election. The variable designates whether the candidate in charge implies a differentiated use of the Internet by the electorate insofar as the population already knows him/her. Note that "incumbent" should not be mistaken for "open seat". The incumbent is a candidate variable, whereas the open seat is a race variable (valid for all candidates of the electoral competition).

(xii) Competitive: designates whether the candidate was competitive in the race, considering his/her position towards the race leader. The competitiveness is checked if the voting intention percentage for the candidate was below 10 points max behind the leader or if he/she was actually the race leader. The candidate's competitiveness does not depend on any specific campaign moment or time, as well as on who has won the election.

(xiii) Media Coverage: Vaccari and Nielsen (2013) had already shown that the presence on traditional media and newspapers is one of the major determinants of online popularity. Accordingly, we verify the Brazilian press media coverage, measured in the number of citations each candidate got from the newspapers. Regardless of Vaccari and Nielsen's (2013) distinction among political blogs, national press, and local press, we consider them a single category.[3] In order to collect the candidates' number of citations, we used the *Google News* tool, since it indexes all Brazilian newspapers (national and regional coverage) and the political blogs hosted on those newspapers' portals as well.

3 We do not deny that traditional media and alternative media have different reach and impacts, but the merger was necessary for the operationalization of the dataset. The distinction of the impacts of each type of media deserves separate research.

(xiv) In a coalition: designates whether the party ran the electoral race in a coalition or by itself. Codato, Cervi, and Perissinotto (2013) showed that running at a municipal level election in a coalition of parties is one of the most powerful predictors of candidates' success for mayor. On that account, we intend to check if the variable also works as a predictor of social media campaigning.

(xv) Strong coalition: designates whether the party coalition is politically relevant or not. It may be conceived as a sophisticated assessment of what the previous variable measures. A coalition is considered strong if it holds at least four parties including one national party among them.

(xvi) Campaign spending: designates the total amount of campaign expenses, according to how much candidates have declared to the Electoral Court (TSE, in the Portuguese acronym). Campaign spending has been acknowledged as a major influence variable in recent electoral studies in Brazil (SPECK; MANCUSO, 2014). In addition, Nielsen and Vaccari (2014) found it as one of the strongest determinants of their model. Therefore, we test whether the candidate campaigning is provided with large financial resources, he/she might attract more online attention.

(xvii) Electoral situation: the candidate's final position in the race election, that is, whether he/she is elected or not elected at the end.

Due to the revelation of an outlier[4], and since his extreme values have the capacity of distorting several elements of the analytical model, we present the analyzed data in two versions: the full set of candidates' interactions and the set of candidates'

4 Marcelo Crivella, senator, is one of the main religious leaders of the Pentecostal Church in Brazil. He ran the electoral race for governor of Rio de Janeiro by the PRB (a party of any electoral coalition). Although defeated, he obtained the sum of 7,373,441 interactions over the campaigning period, more than four times the runner-up, who had 1,689,747 interactions.

interactions but the outlier's interactions (the version we believe best represents the big picture). We also decided to work with two different options regarding the dependent variable in the regression analysis: a) the total interactions and b) the mean of interactions per post. This is because, for example, a candidate's Facebook page may have reached the amount of 100,000 interactions while producing 100 posts; whereas another candidate's page may have reached 80,000 total interactions while producing 40 posts. In the first case, the candidate had a larger number of total interactions in absolute terms. However, at the same time, in the second case, the candidate had twice as many interactions as far as we consider the mean of interactions per post. We argue that both measures are relevant as long as they provide answers to different questions. a) The total amount of interactions shows the audience in general although, hypothetically, those values can be inflated by individuals who interact with all posts of a page that produces a large amount of content. b) The mean of interactions by post is a measure able to fix that hypothetical issue, considering that it shows a single user average number of interactions regarding that it is not possible for individuals to 'like' the same post more than once[5].

Results

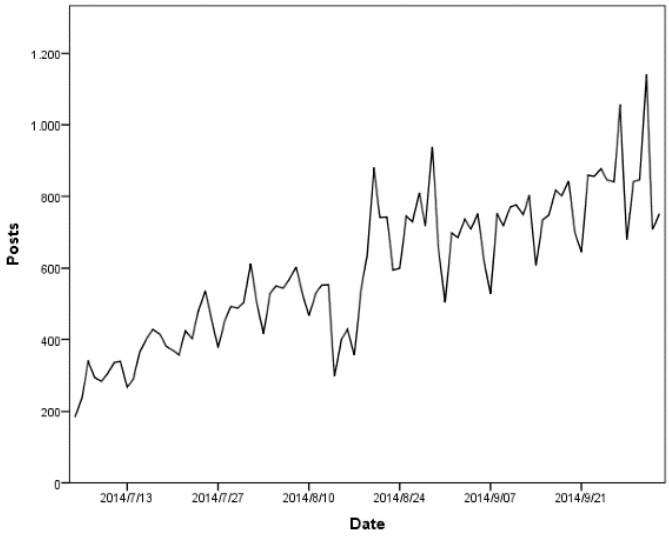
Patterns of use and frequency distribution of online attention

The first set of results shows the candidates' posting patterns and the pattern of attention those posts received during the three-month campaigning. The following graphics demonstrate the dynamics of the campaigning evolution in time. First, we

5 In theory, the mean of interactions per post can also be inflated by the comments owning to the fact that the same individual can comment on the same post multiple times. Even so, comments represent a tiny portion of the amounts of interactions registered in our database as Figure 5 shows.

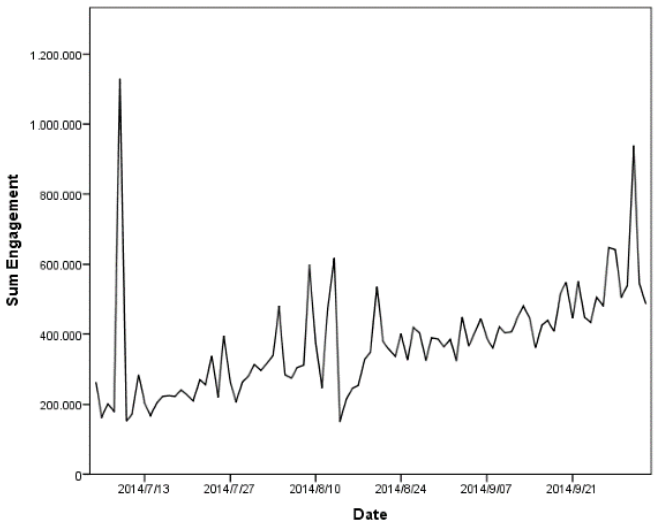
show the number of content production (posts). Next, we show the number of interactions those posts obtained.

Figure 3 – Posts during the campaigning period (governor candidates, 2014)



Source: the authors

Figure 4 – Interactions during the campaigning period (governor candidates, 2014)



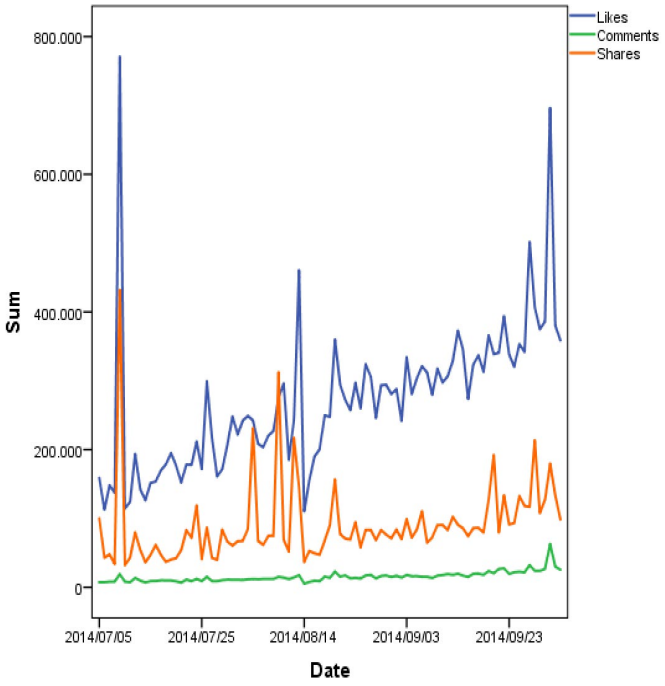
Source: the authors

The campaigning dynamics evolution shows that the posts and their related interactions were progressively increasing as time went by. Interestingly, the number of publications presents a vigorous growth compared with the number of interactions rise, which reveals two different campaigning evolution logics. On the side of the candidates, online campaigning tends to increase in the final weeks while on the side of the electorate, citizens are engaged from the very beginning, and do not show the same oscillation.

The Pearson correlation coefficient between the total number of posts and the total amount of attention those posts have got is very weak concerning the total dataset (p = 0.178 (.035)), but it becomes moderate when we remove the outlier's registries from the dataset (p = 0.423 (.000)). That change obviously demonstrates that the number of interactions depends on the number of posts produced. Notwithstanding, the correlation between posts and interaction is not that strong. If the candidate keeps on producing posts after a certain quantity of interactions were acquired, the extra effort does not generate more online attention.

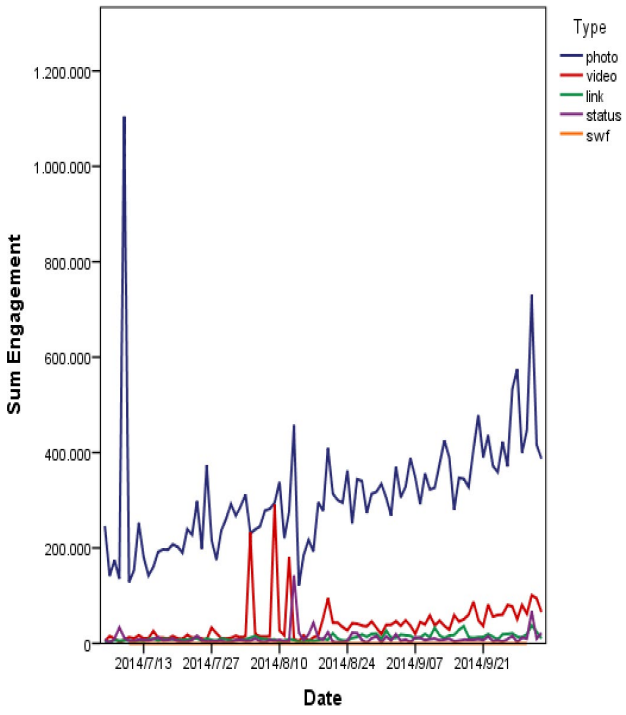
Another Facebook campaigning characteristic, well known by social media marketing managers, is that certain types of posts tend to capture public attention more than other types (LEV-ON; HALEVA-AMIR, 2016). From that point of view, we verified the type of posts that generated larger numbers of interactions. Posts with images received more attention by far than posts with only text (status) or video. The following graphics present the most popular types of interactions identified in the candidates' posts analyses.

Figure 5 – Types of interactions on posts (governor candidates, 2014)



Source: the authors

Figure 6 – Interactions by type of resource (governor candidates, 2014)



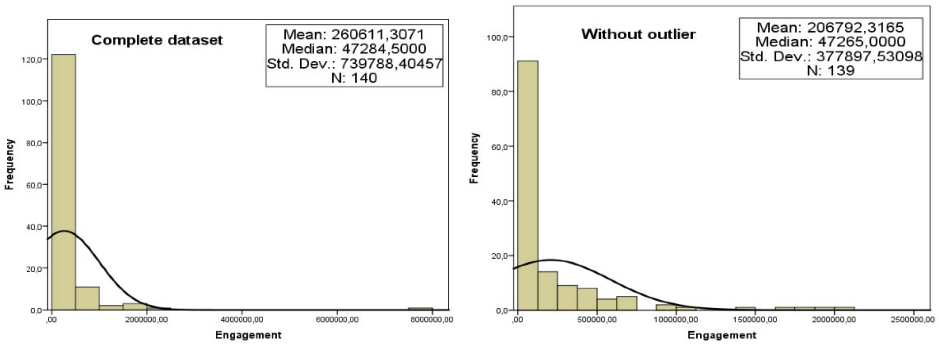
Source: the authors

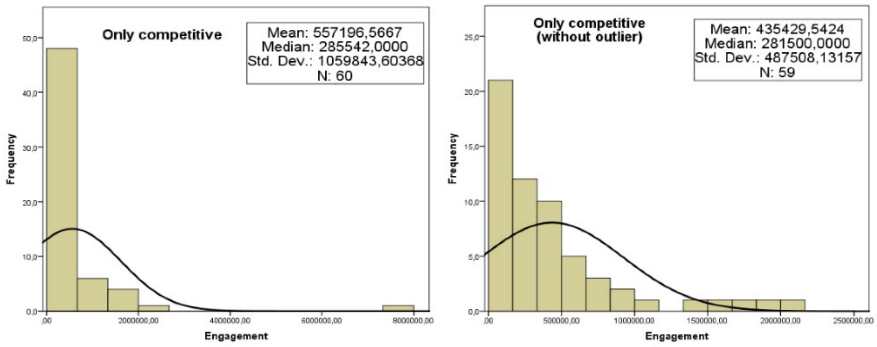
The analyzed data showed that the number of comments is far below the number of other types of interaction. The variation results from the very nature of online electoral campaigning — followers prefer to show appreciation (like) and/or spread the contents (share) rather than getting involved in substantive discussions by means of commenting on the posts.

At the same time, the peculiar characteristics of the Brazilian political system urge us to custom-make some adjustments when analyzing the electorate attention concentration in Brazil. While the electoral studies in the United States measure attention concentration within a bipartisanship political system, in Brazil researchers deal with numerous candidates, who are actually very different from each other, and come from multiple political parties. For that reason, we decided to group the candidates into categories. Our methodological strategy intends to avoid a biased analysis by treating unequals as equals.

Comparing major-parties' candidates with micro-parties' candidates tend to distort the analytical model and eventually blur potential explanations. We argue that the concentration of online attention should be verified within comparable groups of candidates instead of among all candidates indistinctly. In support of that, we present the following histograms, which show the analysis results considering groups of comparable candidates.

Figure 7 – Frequency distribution of online attention (governor candidates, 2014)





Source: the authors

Looking at the set of all candidates, we find out that the median of interactions is 47,284. However, it rises to an impressive amount of 285,542 interactions when we only deal with the set of competitive candidates (the closest scenario to analyses in the United States). The mean and median values regarding total engagement and interactions per post, as the following charts show us, leave our case even more evident.

Table 1 – Total and per post interactions by category of candidates

		Engagement	Mean engagement per post
Complete dataset	N	140	140
	Median	47284.5	121.1
	Mean	260611.3	611.9
	Std. Deviation	739788.4	2380.0
Only competitive candidates	N	60	60
	Median	285542.0	541.0
	Mean	557196.6	1320.5
	Std. Deviation	1059843.6	3525.5

Source: the authors

The total set of candidates has a mean of 611 interactions per post while the set of competitive candidates has a mean of 1,320 interactions per post. Those figures are much higher than the interaction numbers studies similar to Vaccari and Nielsen's (2013) have shown. This exact finding proves our

central standpoint. Vaccari and Nielsen assume that candidates campaigning online have few followers because they only looked into the total number of followers. Despite this, looking at the actual competitive candidates' interactions, we discovered a very active digital campaign.

Furthermore, the fact that outliers might exist does not invalidate the general scenery. Although there is a single candidate who concentrates a large share of the total attention (as the frequency distribution graphs demonstrate), the midpoint indicates a high level of Facebook use by candidates and citizens — different from the American online campaigning in 2010.

Having said that, what are the variables influencing the online attention distribution frequency? We show them as follows.

Determinants of Online Popularity

Once we have identified the patterns of Facebook campaigning candidates who ran for governor in 2014, we use a multiple linear regression model to test which variables explain their success online. The variables used in the model are detailed in the methods section.[6]

We tested the multicollinearity of all variables and the highest VIF[7] found was 6.8, below the acceptable limit (see details in appendices). When VIF is above 10, the predictor variable should not be used in the model because it shows a high multicollinearity. This situation has happened in an earlier version of the model, in which the variable "% of the state population with internet access" was included, and it showed a high multicollinearity (VIF = 18).

The regression analysis used an aggregated candidate-level database where each candidate's Facebook campaigning

6 Alternatively, we could have adopted here a log-based model. However, since our objective is to highlight and discuss the nuances caused by each model when comparing them, we opted to show the log-based analysis in the appendix.

7 Variance Inflation Factor (VIF).

is represented by a single line adding his/her total engagement numbers up.

In order to prevent inconsistent analyses due to some candidates' campaigning strategies as, for example, pages that get more interactions because they produce a larger number of posts, we present another regression model option. Alternatively, the dependent variable is the mean of the number of interactions per post (as detailed in the methods section). The following models 1 and 2 consider the full dataset, whereas models 3 and 4 disposed of the outlier registries.

Table 2 - Coefficients of linear regression of online popularity (with the outlier)

	Model 1: Dependent Variable: Engagement					Model 2: Dependent Variable: Mean Engagement				
	Unstand. B	**Std. Error**	**Stand. Beta**	**t**	**Sig.**	**Unstand. B**	**Std. Error**	**Stand. Beta**	**t**	**Sig.**
(Constant)	95073.2	467267.1		.203	.839	-185.5	1555,6		-.119	.905
Average household income	146.8	409.2	.058	.359	.720	0.7	1.4	.083	.502	.617
Education index	-3047.4	141833.7	-.004	-.021	.983	-27.2	472.2	-.010	-.058	.954
Open seat	-105894.3	152478.7	-.066	-.694	.489	-180.9	507.6	-.035	-.356	.722
Type of dispute	150752.9	85692.7	.154	1.759	.081	305.1	285.3	.097	1.069	.287
Major party	-419439.7	186546.7	**-.264**	-2.248	**.026**	-1249.1	621.0	**-.244**	-2.011	**.047**
Micro party	-225541.9	177995.1	-.125	-1.267	.208	-748.7	592.6	-.129	-1.264	.209
Ideology (party)	15728.3	114406.3	.026	.137	.891	-23.4	380.9	-.012	-.061	.951
Ideology (coalition)	41546.6	114048.3	.072	.364	.716	230.0	379.7	.124	.606	.546
Political leadership	326637.1	188082.9	.189	1.737	.085	1010.2	626.2	.181	1.613	.109
Age	-3213.1	6522.1	-.045	-.493	.623	0.5	21.7	.002	.021	.983
Incumbent	-149033.9	210623.3	-.068	-.708	.481	10.5	701.2	.001	.015	.988
Competitive	605208.5	222795.3	**.398**	2.716	**.008**	1524.6	741.7	**.311**	2.055	**.042**
Media coverage	95.9	36.3	**.289**	2.642	**.009**	0.4	0.1	**.354**	3.137	**.002**
In a coalition	-389909.1	182157.7	**-.250**	-2.141	**.034**	-1471.7	606.4	**-.293**	-2.427	**.017**
Strong coalition	-76367.4	226131.5	-.050	-.338	.736	-368.4	752.8	-.074	-.489	.625
Campaign spending	.005	.007	.085	.672	.503	-4.3E-06	.000	-.022	-.172	.864
Elected	-110151.4	96771.9	-.116	-1.138	.257	-274.0	322.2	-.089	-.850	.397
R^2	.310					R^2	.263			
Adjusted R^2	.208					Adjusted R^2	.154			

Source: the authors

Table 3 - Coefficients of linear regression of online popularity (without the outlier)

	Model 3: Dependent Variable: Engagement					Model 4: Dependent Variable: Mean Engagement				
	Unstand. B	**Std. Error**	**Stand. Beta**	**t**	**Sig.**	**Unstand. B**	**Std. Error**	**Stand. Beta**	**t**	**Sig.**
(Constant)	35551.1	209333.6		.170	.865	-392.8	548.2		-.717	.475
Average household income	25.5	183.4	.020	.139	.890	.261	.480	.078	.544	.588
Education index	-19570.0	63539.9	-.045	-.308	.759	-84.8	166.4	-.075	-.510	.611
Open seat	-72095.9	68321.9	-.088	-1.055	.294	-63.2	178.9	-.030	-.353	.725
Type of dispute	82266.7	38519.4	**.165**	2.136	**.035**	66.5	100.9	.052	.659	.511
Major party	-197088.0	84206.6	**-.245**	-2.341	**.021**	-474.6	220.5	**-.228**	-2.152	**.033**
Micro party	-23152.2	80291.5	-.025	-.288	.774	-43.8	210.3	-.019	-.208	.835
Ideology (party)	20089.2	51249.4	.066	.392	.696	-8.2	134.2	-.010	-.061	.952
Ideology (coalition)	-10281.3	51145.9	-.035	-.201	.841	49.5	133.9	.065	.370	.712
Political leadership	70478.3	85096.9	.079	.828	.409	118.0	222.8	.052	.529	.598
Age	-3371.3	2921.6	-.093	-1.154	.251	-.101	7.7	-.001	-.013	.990
Incumbent	-2299.1	94598.2	-.002	-.024	.981	521.6	247.7	**.181**	2.106	**.037**
Competitive	207121.5	101517.1	**.267**	2.040	**.044**	138.0	265.8	.069	.519	.605
Media coverage	47.5	16.4	**.281**	2.892	**.005**	.210	.043	**.482**	4.895	**.000**
In a coalition	-7547.3	83527.2	-.009	-.090	.928	-139.9	218.7	-.068	-.640	.524
Strong coalition	87203.7	101584.2	.111	.858	.392	201.3	266.0	.100	.757	.451
Campaign spending	.009	.003	**.309**	2.774	**.006**	1.1E-05	.000	.137	1.211	.228
Elected	-26145.6	43526.5	-.054	-.601	.549	18.6	114.0	.015	.163	.871
R^2	.466					R^2	.449			
Adjusted R^2	.386					Adjusted R^2	.367			

Source: the authors

The presence of an outlier imposes the model on a strong bias regarding 'coalition' (he ran the electoral race affiliated to a non-coalition party — PRB) and 'campaign spending'.

Examining the models which better represent the scenery (models 3 and 4), we realize that press coverage, being in a major party, and being a competitive candidate are the most

significant attributes, followed by campaign spending (only in model 3). The models that consider the outlier's data show a lower R^2 compared to the models that disposed of his registries. That indicates the outlier's presence distorts the explicative model. It means that the adopted solution of disposing of outlier data not only adjusts the framework to accurately represent the general picture but also improves the analytical model itself.

Comparing the models on 'the mean of interaction per post' and on 'the total number of interactions', the strongest predictor variable is "incumbent" and it turns up even stronger in model 4. By the way, model 4 is interesting to highlight since its two strongest predictive variables ('incumbent' and 'media coverage') relate to the idea of voters having a "prior knowledge" of politicians. We remind that although there is a logical relationship between these two variables (candidates currently holding office do get more press coverage), both have shown a VIF lower than 10.

This difference between the results of average interactions per post and the total number of interactions indicates that candidates who are incumbents and/or have great coverage in the press (as already known) get large attention online even if they produce less content.

The fact the incumbent's figures were almost insignificant in all models but model 4 shows that they achieved high mean values rather than high total values. That indicates a different content production strategy: incumbents did not post much content online, but whenever they did, they got proportionally more interactions than the other candidates (see model 4). Challengers, on the other hand, showed higher total figures probably in an attempt to balance their game (see model 3).

In addition, we have identified some variables considered very consistent: 'political leader', 'type of dispute', and 'ideology of party'. Even though their p-value significance levels are not below

0.050, they still serve the model since it deals with the whole population, not with a sample of it.[8]

At last, all four models have shown that the most significant predictors were those related to the campaign context itself as, for example, running the electoral race as a competitive candidate is more relevant than being a political leader.

Discussion

What does the analyzed data tell about the political forces or the dynamic of electoral campaigns? In this section, we discuss the implications of some findings. Online popularity sources relate directly to campaign resources, i.e., which means must a candidate mobilize in order to reach online citizens and get their attention? Does the internet really promote changes in those popular sources? The data has shown double-sided findings.

Firstly, party aspects do share strong importance. Party structure *matters* in online campaigning. Running in an electoral race by a major party is significant to get online popularity. There are two possible explanations for this phenomenon.

Even in a highly personalized political system, as the literature poses, candidates from the three main parties obtained a differentiated attention level. This indicates that, at least in those parties, there is already an online party institutionalization and even some electorate identification with them. It seems that some social discrepancies are balanced in online popularity. Three out of our four models demonstrate that campaign spending does not impact online campaigning. However, this assertion is partially true. When we look at the micro-parties, we recognize that their lack of importance is reproduced online.

8 There is a debate between Brazilian political scientists and statisticians about when the p-value should be considered indispensable. In Brazil, the p-value is always used regardless research design. In American statistics manuals, however, the p-value is indispensable only in sampling. When it comes to research with the entire universe (as in this case), their result is indicative, but not absolute.

Secondly, we evidenced that the strongest online popularity predictor is, by far, the candidate's presence in the newspapers and their related blogs. Several experts have argued that online platforms may be an alternative to the dependency on traditional media agenda setting in politics (especially during electoral campaigns) (TRIPPI, 2005). Another body of literature states that there is not a zero-sum relationship among the various media, but rather the emergence of a hybrid media system able to integrate older and newer technologies and organizational forms (CHADWICK, 2013). In this sense, our findings confirm the latter approach.

A prospective research matter is 'ideology' though it has shown intermediate results in the regression analysis. The 2014 elections in Brazil were noticed by what analysts named a "right resurgence" in Congress since it was the first time since 2002 that right parties had some electoral advance. In this context, an attentive checking on ideology levels may establish a fruitful dialogue with the literature body that studies the relations between behavior on social media and offline phenomena, such as voting behavior (GAYO-AVELLO; MATAXAS; MUSTAFARAJ, 2011; BRAGA; BECHER, 2015).

In short, contextual electoral factors seem to be the most decisive online popularity variables. The findings of one being a competitive candidate is more important than being a political leader illustrates that. Vaccari and Nielsen (2013) indicated three main factors for online popularity: voting intentions in polls (the same variable we used as 'competitive candidates'), money spent on campaigning, and press coverage. In essence, we figure out the repetition of that pattern in Brazil: media coverage, being a competitive candidate, and campaign spending are the best explicative variable of the scenario, together with two other variables: run at the election by a major party and being incumbent at the time.

The last attribute is what differentiates elections in Brazil and in the United States. In the election described by Vaccari

and Nielsen (2013), the challengers attracted far more online attention. Our study shows that in Brazil candidates currently holding office attracted more online attention. While American voters tend to show online interest in candidates who are out of power, Brazilian voters tend to concentrate on candidates who are already inside the government. That opposite trend constitutes another potential topic for future research on online voting behavior. In addition, the online campaigning similar patterns found in Brazil and in the United States are the type of research findings capable of addressing a starting point for the development of a general explanation model on the reasons why politicians are successful in online campaigning.

Our study partially confirms Anstead and Chadwick's (2008) idea that different institutional contexts lead to different Internet usage. In fact, the pattern of Brazilian candidates' Internet campaigning was revealed to be much more active than the general pattern argued by the literature. At the same time, however, the statistical determinants of the Brazilian use pattern and of the American use pattern are the same. In other words, their Internet usage patterns are different even though the predictors are the same.

This could potentially lead to two research approaches. One is the study on the differences in online campaigning patterns, either using institutional context variables (we did not find statistically significant results though), or other sorts of variables. The other is the study on the similarities of online campaigning patterns, working towards the development of a general explanation model. In any case, we believe that the methodological solution to address research issues like the type of aspects that most favor online campaigning — whether local or universal attributes — are comparative studies on elections and the Internet.

Conclusive Notes

Do people interact with politicians on Facebook? The answer is undoubtedly yes. Why do some politicians attract more online attention than others? Evidently, an outlier concentrates a reasonable share of the total online attention while some candidates practically do not exist online — but what about the average candidate? The midpoint, especially among competitive candidates, unlikely the American portrait, indicates a strong use of social media campaigning. Yes, politicians and citizens do interact online.

Theoretically, other than Vaccari and Nielsen (2013), we argued that the total amount of online followers does not matter that much, but the number of interactions between candidates and those followers does. Ultimately, perhaps even more important than the number of interactions per candidate page is to identify whom these pages connect with and what are the interaction patterns among them.

Future research questions do not need to address whether or not campaigning candidates use digital technologies, but how they are using them and what are the effects of those online tools on voting behavior and the organization of electoral campaigns. A forthcoming research agenda may also deal with the impact of various online communication strategies (types of content production) on successful online campaigning, among other questions.

In general terms, we consider that the main contributions of our investigation are: a) the development of a model to improve Vaccari and Nielsen's (2013) online popularity; b) the description of the frequency distribution of the attention candidates got on Facebook during the 2014 online campaigning for state governor in Brazil; c) statistical regression analysis on the factors that explained the Facebook campaigning at that electoral race.

Overall, the most determinant online campaigning predictors were: press citation, being a competitive candidate, and campaign spending. Those predictors reproduced Vaccari and Nielsen's (2013) results when they described the United States election in 2010. Finally, we suggest that future comparative investigations concentrate on a broader set of possible reasons for online campaigning success.

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Appendix

Table 4 - Collinearity Statistics

	Model 1		Model 2		Model 3		Model 4	
	Collinearity Statistics		Collinearity Statistics		Collinearity Statistics		Collinearity Statistics	
	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
(Constant)								
Average household income	.233	4.299	.233	4.299	.234	4.274	.234	4.274
Education index	.223	4.476	.223	4.476	.224	4.467	.224	4.467
Open seat	.672	1.489	.672	1.489	.674	1.484	.674	1.484
Type of dispute	.785	1.274	.785	1.274	.785	1.273	.785	1.273
Major party	.434	2.304	.434	2.304	.429	2.330	.429	2.330
Micro party	.617	1.620	.617	1.620	.610	1.639	.610	1.639
Ideology (party)	.162	6.184	.162	6.184	.163	6.124	.163	6.124
Ideology (coalition)	.153	6.520	.153	6.520	.154	6.482	.154	6.482
Political leadership	.508	1.970	.508	1.970	.509	1.965	.509	1.965
Age	.719	1.391	.719	1.391	.720	1.389	.720	1.389
Incumbent	.658	1.519	.658	1.519	.655	1.526	.655	1.526
Competitive	.280	3.573	.280	3.573	.273	3.660	.273	3.660
Media coverage	.503	1.989	.503	1.989	.497	2.011	.497	2.011
In a coalition	.439	2.278	.439	2.278	.424	2.357	.424	2.357
Strong coalition	.279	3.587	.279	3.587	.279	3.590	.279	3.590
Campaign spending	.379	2.640	.379	2.640	.377	2.649	.377	2.649
Elected	.580	1.724	.580	1.724	.576	1.735	.576	1.735

Source: the authors