DORMANT VOTERS, SOCIAL MEDIA, AND STRATEGIC RADICALISM – PRELIMINARY RESULTS

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Resumo: Esta nota analisa as escolhas dos partidos em perseguir uma campanha eleitoral presidencial tradicional com foco em influenciar eleitores informados que se preocupam com a política proposta e têm preferências ideológicas, ou em se concentrar em discurso mais radical cujo objetivo é trazer para a arena eleitoral cidadãos politicamente "adormecidos". Para despertar eleitores dormentes, os partidos usam uma estratégia de discurso radical, focada na tecnologia de mídia social. Em geral, a estratégia do discurso radical será adotada se houver razoável número de eleitores adormecidos, a tecnologia de mídia social tiver evoluído para atingir uma parte significativa do eleitorado e houver evidência suficiente ex-ante de um viés ideológico dos eleitores adormecidos em favor de um partido.

Palavra-chave: Gastos de campanha eleitoral; Redes sociais; Discurso político radical; Eleitores adormecidos; Competição eleitoral.

Abstract: This note analyzes the choices of parties to either pursue a traditional presidential electoral campaign focusing on influencing informed voters who care about the proposed policy and have ideological preferences, or to concentrate on a more radical discourse which goal is to take to the voting arena dormant citizens who would, otherwise, retract from voting. To awaken dormant voters, parties use a radical discourse strategy, focused on social media technology. In general, the radical discourse strategy will be adopted if there are enough dormant voters, the social media technology has evolved to reach a significant part of the electorate, and there is enough ex-ante evidence of an ideological bias of dormant voters towards one specific party.

Keywords: Electoral campaign expenditure; Social media; Radical political discourse; Dormant voters; Electoral competition.

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Resumen: Esta nota analiza las opciones de los partidos para llevar a cabo una campaña electoral presidencial tradicional con un enfoque en influir en los votantes informados que se preocupan por la política propuesta y tienen preferencias ideológicas, o para enfocarse en un discurso más radical cuyo objetivo es traer ciudadanos políticos "dormidos" a la arena electoral. Para despertar votantes inactivos, los partidos utilizan una estrategia de discurso radical, centrada en la tecnología de las redes sociales. En general, la estrategia del discurso radical se adoptará si hay un número razonable de votantes dormidos, la tecnología de las redes sociales se ha expandido para llegar a una parte significativa del electorado y existe suficiente evidencia ex ante de un sesgo ideológico de votantes dormidos a favor de un partido.

Palabras clave: Gasto en campañas electorales; Redes sociales; Discurso político radical; Votantes dormidos; Competencia electoral.

1 Introduction

Brazilian 2018 Presidential elections displayed a different pattern from all previous ones. Important distinctions include the strong use of social media in the political campaign, fake news and, most importantly, overly aggressive, politically incorrect, and plain radical discourse on the part of the winning candidate.

In this election in Brazil, a strong indicator of the use of this type of electoral campaign was the great discrepancy of values spent between the candidates. The loser spent twenty times as much on traditional election campaigns, while the winning candidate focused social media-based campaigns, that are clearly less controlled and facilitates radical discourse shocking uninformed voters and inducing them to take a political stand[3].So, the present paper considers the idea created for Baron (1994),

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[3] "*Derrotado no segundo turno da eleição presidencial, o petista Fernando Haddad gastou 20 vezes mais do que Jair Bolsonaro, na campanha eleitoral. Segundo dados disponíveis do portal do Tribunal Superior Eleitoral (TSE), a campanha de Haddad declarou, até agora, despesas de R$ 34.400.867. Já Bolsonaro registrou na Justiça Eleitoral gastos de R$ 1.721.537*". In a free translation: "*Defeated in the second round of the presidential election, Fernando Haddad spent 20 times more than Jair Bolsonaro in the election campaign. According to data available from the website of the Superior Electoral Court (TSE), Haddad's campaign has so far declared expenses of R$ 34,400,867. Bolsonaro, on the other hand, registered expenses of R$ 1,721,537 in the Electoral Justice*". Available at

that had divided electorate into two types, informed and uninformed citizen. From this, the perspective now is to build a political economy model to understand the strategic use of the radical discourse strategy as an optimal rational choice. The model aims to explain when and why such a strategy may be part of a Nash equilibrium of the electoral competition game.

The main friction of the model is the fact that, due to previous disappointment or other types of motives, a significant part of the electorate becomes "dormant" in the sense of lack of interest in the political process. These uninformed dormant citizens will not vote unless they are awakened into politics. However, dormant citizens are immune to the typical political campaign. Therefore, to catch their interest in the elections, a candidate must shock then by upholding a radical discourse. Such radical discourse strategy is more effective if it makes wide use of social media communication technology. The result of such a shock is that the dormant citizen decides to learn more about the shocking statements and takes a stand, whether to support the corresponding politician or to oppose him. In either case, the citizen awakes and votes. Note that the goal of attracting the attention of dormant citizens allows for the use of fake news as a shocking strategy.

The main result of the theoretic analysis is that a party will decide to spend its campaign resources into the radical discourse through social media only if it believes that, on average, dormant citizens have a latent ideological preference favoring that party. Therefore, in general, at most one party will radicalize if all parties have access to the same signal about the median latent ideological preference of dormant citizens, considering, for instance, opinion research available for all parties.

Furthermore, the radicalization motive may not be strong enough, so that the traditional, more respectful type of political campaign aimed at the general, informed voter may be the final equilibrium outcome, most especially if social media technology is not widespread, as it was the case during the previous, 2014 electoral campaign in Brazil.

The rest of this paper is organized as follows. Section 2 presents an overview of the political economy model. Section 3 introduces the two types of citizens, informed and dormant citizens, and analyzes their voting

decisions. Section 4 solves the electoral competition game for the decision of parties regarding which citizens to direct their resources and electoral campaign strategies and presents the possible equilibria. Finally, section 5 concludes the paper.

2 A model of electoral competition with informed and uninformed dormant voters

The electoral competition game between parties, lobbyists and voters is presented in Figure 1. The main modeling hypothesis here is that parties announce their policies first, and then lobbyists decide whether to make political contributions based on these announcements. Parties use the private contributions to influence voters during the electoral campaign in two possible campaign strategies: the traditional campaign directed at informed voters and the radical discourse campaign directed at shocking dormant voters, to bring them back to the voting arena and awakening a so-called latent ideology of the voter. Each type is sensitive to a single type of spending: traditional, for the informed, and radical social media for the uninformed.

After the electoral campaign, each informed voter receives stochastic signals that affect his preferences for the parties, observes the announced platform of each party and votes sincerely, i.e., for the party that best represents his preferences. As for the previously dormant voters, they vote according to their latent ideological preferences. There is one national electoral district in which each voter has one vote. The party that receives a plurality of votes wins the election and implements its campaign platform.

The basic model extends Persson and Tabellini (2000, chapter 3). It includes these two types of potential voters as well as campaign expenditure strategies directed to each of one of the possible types of potential voters.

Note that only the three wider, curved rectangles correspond to real strategic decisions in Figure 1. The top one corresponds to parties' platform announcement; the second one from the top corresponds to lobbyists' campaign contributions decisions; and the second one from the bottom to voters' choices. The third (squared) box from the top states the assumption that parties use all available resources in their electoral campaign, so that there is no decision about deviation of resources out of

the campaign in the present model. The ellipse represents the realization of random variable that are out of the control of the players and the last (squared) box states the typical assumption of full commitment made in models of electoral competition, i.e., the victorious party implements its announced policy.
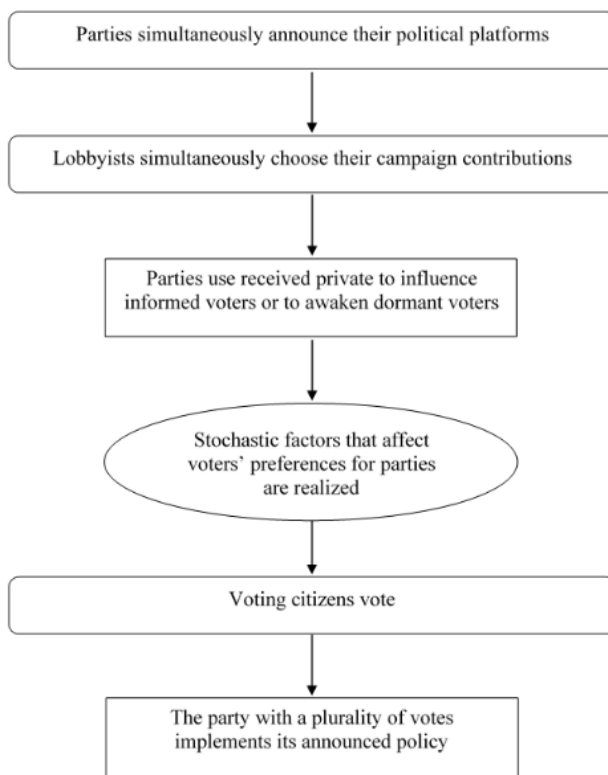

Figure 1: The Electoral Competition Game

3 Voters' electoral decision

There is a continuum of unit mass of voters, $\Omega = [0,1]$. There are two types of voters, the informed and the uninformed voters, as in Baron (1994).

Informed voters are the traditional type of voters in Persson and Tabellini (2000) and Portugal and Bugarin (2003, 2007), that care about the policy that will be implemented, have ideological preferences, and are influenced by campaign expenditure. Uninformed voters are dormant or

numb, in the sense that they will not vote unless they are awakened by radical discourse.

Each informed voter belongs to one of three social classes according to his income [4]. The upper-class R ("rich") is composed of informed voters with high-income y^R; the middle class M is formed by informed voters of average income y^M; finally, the lower class P ("poor") encloses informed voters with low income y^P. Thus, $y^R > y^M > y^P$.

Numb uninformed voters have latent ideological preferences and, if they are awakened, they vote based exclusively on those preferences. In the case of this type of voters, what matters is their average income, y^N.

A social class $J, J = R, M, P, N$, has mass α^J, so that $\sum_J \alpha^J = \alpha^R + \alpha^M + \alpha^P + \alpha^N = 1$. Note that $\sum_J \alpha^J y^J = \alpha^R y^R + \alpha^M y^M + \alpha^P y^P + \alpha^N y^N = y$

For simplicity, it is considered that all informed voters have equal income in each class. Note that, since only average income matters for uninformed voters, these voters may have different incomes.

There are two parties $P = A, B$ that compete by announcing the level of production of a *per capita* public good g that will be implemented if the party wins the election. Public good provision is financed by an income tax given by the rate τ, which is the same for all voters. All tax-collected resources are converted into the public good. Therefore, the government budget constraint is $\sum_J \alpha^J \tau y^J = \tau y = g$, where $y = \sum_J \alpha^J y^J$ represents the average income of voters, including uninformed voters, although they do not care about the announcement of the *per capita* public good g. In fact, the uninformed voter is not a politic agent, ie., she has no preference about the public police that will be implemented.

An informed voter's utility has two components: a pragmatic (or sociotropic) and an ideological (or idiosyncratic) one [5]. The pragmatic part of the utility represents the voter's decisions as an economic agent, and depends on the consumption of a private good, as well as the consumption of the public good provided by the government. Suppose platform g wins

[4] The three-class model is a simple way to characterize differences in wealth among citizens. However, it is straight forward to extend it to any finite number of classes, as in Persson and Tabellini (2000, chapter 3). For a different definition of uninformed voters see Baron (1994).

[5] This is the most general way of characterizing an economic agent who also has political concerns. For more on this topic, see Ferejohn (1986), Bugarin (1999) or Bugarin (2003).

the election. Then, the net-of-taxes income of an agent of class J is $c^J = (1-\tau)y^J = (y-g)\frac{y^J}{y}$, which is normalized to be the agent's private consumption utility. Therefore, the pragmatic part of the utility of an informed voter of class J is shown below, where the utility of public good consumption is given by the function H, which is assumed to be strictly increasing and strictly concave.

$$W^J(g) = (y-g)\frac{y^J}{y} + H(g)$$

Thus, each informed class has its own optimal policy for the public good provision. These optimal policies are obtained by maximizing each class's utility function and are given by $g_J^* = (H')^{-1}\left(\frac{y^J}{y}\right)$, $J = P, M, R$, where $g^P > g^M > g^R$

The ideological component of an informed voter's utility function is represented by two random variables corresponding to the voter's bias towards party B, or equivalently, party B's popularity at the time election is held. The first random variable is common to all voters and is associated to the realization of a state of nature that affects the entire population. A war, an abrupt change in international prices of a commodity such as oil, a country-wide energy crisis, these are all examples of such phenomenon. A clear example is the popularity of the U.S. president after the terrorist attack on September 11th, 2001, which increased from 57% in February to 90% in September[6]. That process is described by a random variable δ, which is observed very next to the elections and the model assumes uniformly distributed on $\left[-\frac{1}{2\psi}, \frac{1}{2\psi}\right]$. The parameter $\psi > 0$ measures the level of sensibility of society to aggregate shocks: the lower the value of ψ, the more those shocks may affect society.

The second random variable is particular to each voter i in group J and reflects his personal bias towards party B. This bias is modeled as a random variable σ^{iJ}, which is uniformly distributed on $\left[-\frac{1}{2\phi^J}, \frac{1}{2\phi^J}\right]$. Hence, the greater the parameter ϕ^J, the more homogeneous class J is. For simplicity, and to avoid electoral effects of class heterogeneity, we normalize all the classes' random variable parameters to $\phi^J \equiv \phi, J =$

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[6] See "Poll Analyses", Section "Gallup Poll News Service", The Gallup Organization, http:/www.gallup.com, 09/24/2001.

$P, M, R.$

Therefore, if party B is victorious with announced platform g_B, an informed voter i in the social class J derives utility $W^J(g_B) + \sigma^{iJ} + \delta$.

Note that positive values for σ^{iJ} and for δ indicate a favorable bias towards party B, whereas negative values indicate a favorable bias towards party A. Also note that the realization of the global random variable can be favorable to party B and at the same time, the realization of the individual-specific random variable can favor party A, and vice-versa.[7]

On the other hand, an uninformed voter also has a latent ideological position v^i. If that ideological position remains dormant, the citizen will abstain from voting. Conversely, if she becomes aware of that ideological position, then she will vote accordingly, i.e., the voter will vote for party B if $v^i > 0$, will vote for party A if $v^i < 0$, and will not take a ballot if $v^i = 0$. The latent ideologies are uniformly distributed on the interval $\left[-\frac{1}{2} + \xi, \frac{1}{2} + \xi\right]$, where $\xi \in \left[-\frac{1}{2}, \frac{1}{2}\right]$ is the median bias for party B. Therefore, if $\xi > 0$, then dormant voters are biased in favor of party B, and if $\xi < 0$ they are biased in favor of party A.

Before the electoral campaign starts, parties observe and learn the value of $\xi \in \left[-\frac{1}{2}, \frac{1}{2}\right]$ Therefore, parties estimate that a percentage $\frac{1}{2} + \xi$ of the awakened uninformed voters will vote for party B, whereas a percentage of $\frac{1}{2} - \xi$ of the awakened voters will vote for party A. Thus, the net gain in terms of votes from the awakened voters to party A is -2ξ. Note that if $\xi > 0$, then having the uninformed voters awakened is detrimental to party A, whereas it is beneficial to party A if $\xi < 0$.

The median bias ξ is a random variable and reflects an appearance shock observed close to elections (for instance, via opinion research) by both parties in the moment they choose how to make their campaign expenditure.

Consider now the role of campaign expenditure in the model. There are two types of campaign spending: the traditional and the new social media spending. The traditional spending consists of TV commercials,

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[7] Suppose, for example, that the country faces an economic expansion, so that society approves the incumbent for overall conduct of the economy, but the president is involved in a sexual scandal, which can affect voters differently.

outdoors, pamphlets, shows, etc. and only affects the informed voters, who care about the policy platform. The new social media spending potentially affects the numb voters in the following way[8].

If a numb citizen receives a social media campaign statement, and that statement is radical enough, it may induce the citizen to seek additional information on that candidate and the elections in general. That process of information seeking will reveal that citizen's ideological position ν to herself, who will, then, vote accordingly. Note that an expenditure in social media from one party may induce an awakened voter to vote against that party. Suppose, for example, that party B's advertised position is strongly against protection of indigenous rights, arguing that indigenous reserve land should be opened to exploitation, rather than preserved; then, a dormant citizen shocked by that statement will search addition information and, after confirming that policy stance of party B and positioning herself against it, may decide to vote for party A.

Furthermore, the proportion of overall awakened dormant voters depends on the overall expenditure of parties in social media advertisement. Let $C_J^S, C_J^T, C_J, J = A, B$ be respectively expenditure in social media, in traditional and the total campaign expenditure of party J. Then, an uninformed voter will awake with a probability $s(C_A^S + C_B^S) \in [0,1)$ with $s(0) = 0$ and $s(C_A + C_B) < 1$, i.e. even if the entire campaign expenditure is directed towards wakening numb voters, not all of them will, in fact, awake[9]. For simplicity, we posit the following expression for that probability: $s(C_A^S + C_B^S) = k(C_A^S + C_B^S)$ where $k < (C_A + C_B)^{-1}$. Thus, the number of uninformed voters that will awake is given by $k(C_A^S + C_B^S)\alpha^N$.

Overall traditional campaign spending will affect the ideological component of an informed voter's utility function, in a way that is linear to the difference between total parties' expenditure. Then, the utility of an informed voter i of class J when party B's (respectively, party A's) campaign spending is C_B^I (respectively, C_A^I) and party B wins election is:

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[8] In this model, there is no discussion about campaign resources origin, if it is public or private. The discussion is about how it will be expended, ie, if in traditional or in social media campaigns.

[9] This expense influences the current election, not determining that the uninformed voter who woke up will remain awake in the next election. It is possible to suppose that awaken voters return to be dormant after elections.

$$W^J(g_B) + \sigma^{iJ} + \delta + h(C_B^T - C_A^T)$$

The parameter $h > 0$ represents the effectiveness of campaign spending, i.e., how much the difference between party campaign expenditures can affect its popularity. Note that if C_B^T is greater than C_A^T, then party B increases its popularity among informed voters during the electoral campaign. Otherwise, overall campaign expenditures reduce B's popularity.

Suppose now that party P announces policy g_P, $P = A, B$. Then a voter i in group J will prefer party A to B if:

$$W^J(g_A) > W^J(g_B) + \sigma^{iJ} + \delta + h(C_B^T - C_A^T)$$

This comparison determines informed voters' electoral decision.

4 Parties' electoral strategies

From voters' electoral decision, one can identify for each class J a voter that is indifferent between the two parties, who is called the *swing voter* of class J. That voter corresponds to the realization of σ^{iJ}, defined as σ^J by:

$$\sigma^J = W^J(g_A) - W^J(g_B) + h(C_A^T - C_B^T) - \delta$$

Therefore, the number of votes cast for party A among informed voters is:

$$\pi_I^A = \sum_J \alpha^J \sum_J (\sigma^J) = \frac{1}{2}(1 - \alpha^N) + \sum_J \alpha^J \phi^J \sigma^J$$

In addition, the net number of expected votes cast for party A among awakened voters is:

$$\pi_U^A = s(C_A^S + C_B^S)\alpha^N \left(\frac{1}{2} - \xi\right)$$

Thus, the expected number of votes cast for party A is:

$$\pi^A = \pi_I^A + \pi_U^A = \frac{1}{2}(1 - \alpha^N) + \sum_J \alpha^J \sigma^J \phi^J + s(C_A^S + C_B^S)\alpha^N \left(\frac{1}{2} - \xi\right)$$

$$\pi^A = \frac{1}{2}(1 - \alpha^N) + s(C_A^S + C_B^S)\alpha^N \left(\frac{1}{2} - \xi\right)$$
$$+ \sum_J \alpha^J \phi^J [W^J(g_A) - W^J(g_B) + h(C_A^T - C_B^T) - \delta]$$

Since $\phi = \sum_J \alpha^J \phi^J$:

$$\pi^A = \frac{1}{2}(1 - \alpha^N) + s(C_A^S + C_B^S)\alpha^N \left(\frac{1}{2} - \xi\right) + h(C_A^T - C_B^T)\phi - \delta\phi$$
$$+ \sum_J \alpha^J \phi^J [W^J(g_A) - W^J(g_B)]$$

Note that the electorate is given by $\alpha^P + \alpha^M + \alpha^R + s\left(C_A^S + C_B^S\right)\alpha^N$, so, party A will win if it obtains at least $\frac{1}{2}(\alpha^P + \alpha^M + \alpha^R + s\left(C_A^S + C_B^S\right)\alpha^N) = \frac{1}{2}(1 - \alpha^N) + \frac{1}{2} s\left(C_A^S + C_B^S\right)\alpha^N$, which means:

$$p_A = prob\left[\pi^A > \frac{1}{2}\right]$$
$$= prob\left[\frac{1}{2}(1 - \alpha^N) + s(C_A^S + C_B^S)\alpha^N \left(\frac{1}{2} - \xi\right) + h(C_A^T - C_B^T)\phi - \delta\phi\right.$$
$$+ \sum_J \alpha^J \phi^J [W^J(g_A) - W^J(g_B)]$$
$$\geq \frac{1}{2}(1 - \alpha^N) + \frac{1}{2} s(C_A^S + C_B^S)\alpha^N]$$

Equivalently:
$$p_A = prob[-\xi s(C_A^S + C_B^S)\alpha^N + h(C_A^T - C_B^T)\phi - \delta\phi$$
$$+ \sum_J \alpha^J \phi^J [W^J(g_A) - W^J(g_B) \geq 0]$$

$$p_A = prob[\delta \leq -\frac{1}{\phi}\xi s(C_A^S + C_B^S)\alpha^N + h(C_A^T - C_B^T)$$
$$+ \frac{1}{\phi}\sum_J \alpha^J \phi^J [W^J(g_A) - W^J(g_B)]$$

Writing $W(g_A) = \sum_J \alpha^J W^J(g_A)$ and $W(g_B) = \sum_J \alpha^J W^J(g_B)$ and considering δ is uniformly distributed on $\left[-\frac{1}{2\psi}, \frac{1}{2\psi}\right]$, it will be

obtained:

$$p_A(g_A, g_B; C_A^T, C_A^S, C_B^T, C_B^S)$$
$$= \frac{1}{2} + \psi[W(g_A) - W(g_B) - \frac{1}{\phi} \xi s(C_A^S + C_B^S)\alpha^N$$
$$+ h(C_A^T - C_B^T)]$$

Now, by symmetry:

$$p_B = 1 - p_A = \frac{1}{2} - \psi[W(g_A) - W(g_B) - \frac{1}{\phi} \xi s(C_A^S + C_B^S)\alpha^N + h(C_A^T - C_B^T)]$$

The objective of this paper is to understand a party's choice regarding how it will share its campaign expenditure resources among the two possible categories, the traditional expenditure, and the new social media expenditure. Since the two parties' problems are symmetrical, it is enough to study the behavior of party A.

Party A will choose g_A that maximizes her probability of winning elections, restricted to the total amount of campaign expenditure $C_A = C_A^S + C_A^T$. This is equivalent to:

$$\max_{g_A, C_A^T, C_A^S} W(g_A) - \frac{1}{\phi} \xi s(C_A^S)\alpha^N + h C_A^T$$

So, $g_A = H_g^{-1}(\frac{1}{\phi} \sum_J \frac{\alpha^J \phi^J y^J}{y})$.

Note first that if $\xi > 0$, then awakening numb voters is detrimental to party A. Therefore, in that case party A will not adopt the strategy of radical social media discourse: $C_A^S = 0$. So, in this case, party A will choose to expend all her money in traditional campaign $C_A = C_A^T$.

Suppose now that $\xi < 0$, then on average the awakened uninformed voters will benefit party A, but the decision in favor of the social media campaign will depend on the votes it will generate compared the ones obtained in traditional campaign.

Let us compare the returns of the different types of expenditure. The relevant part of the probability of victory to be analyzed is:

$$h C_A^T - \frac{1}{\phi} |\xi| s(C_A^S)\alpha^N$$

In this case, party A compares the coefficients h and $\frac{1}{\phi}|\xi|s\alpha^N$.

If $\frac{1}{\phi}|\xi|s\alpha^N < h \Leftrightarrow \xi s\alpha^N > -\phi\,h$, it will be too expensive to party A to awake uninformed voters, then party A will not spend any resource in the social media radical discourse strategy: all its campaign expenditure will be directed to the traditional informed voters. Party A will choose $C_A^S = 0$ e $C_A = C_A^T$.

Conversely, if $\frac{1}{\phi}|\xi|s\alpha^N > h \Leftrightarrow \xi s\alpha^N < -\phi\,h$, the marginal return in awaking uninformed voters is better, then party A will become a digital party, directing all its resources to the social media radical discourse strategy, focusing on an attempt to awaken the dormant voters. Party A will choose $C_A^T = 0$ e $C_A = C_A^S$. Note party A will receive votes from informed voters because of its ideological position and chosen police, but it will not expend resources in traditional campaign.

Finally, in the special case where $\frac{1}{\phi}|\xi|s\alpha^N = h \Leftrightarrow \xi s\alpha^N = -\phi\,h$, then party A is indifferent between two strategies and may use part of its resources to each one of them.
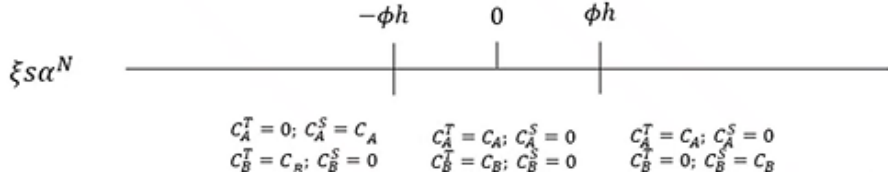
It is interesting to discuss under which condition each one of the strategies is more likely to occur. The parameters indicate that:

(i) The more sensitive to campaign expenditure informed voters are, i.e., the higher h, the more attractive the traditional strategy is;

(ii) The higher the percentage of informed voters in society, i.e., the higher $1 - \alpha^N$, the more likely the traditional strategy will be chosen; and

(iii) The more homogeneous informed voters are in each class, i.e., the higher ϕ, the more likely the traditional strategy is superior to party A.

On the other hand:

(iv) The more biased the median ideological position of dormant voters towards party A, i.e., the higher $|\xi|$, $\xi < 0$, the more attractive it is for party A to spend its resources in the radical social media discourse, in order to awake those voters; and

(v) The more sensitive to the awakening technology dormant voters are, i.e., the higher s, the more likely party A will find interest in that radical strategy.

Then, considering party B has a symmetric problem to solve, there are three possible equilibria:

$$\xi s\alpha^N$$

	$-\phi h$	0	ϕh

$c_A^T = 0;\ c_A^S = C_A$ | $c_A^T = C_A;\ c_A^S = 0$ | $c_A^T = C_A;\ c_A^S = 0$
$c_B^T = C_B;\ c_B^S = 0$ | $c_B^T = C_B;\ c_B^S = 0$ | $c_B^T = 0;\ c_B^S = C_B$

Equilibrium 1: Traditional non-radical equilibrium.

Both parties spend all their resources in the traditional campaign strategy. This will occur if $\xi s\alpha^N = 0$.

In this equilibrium, although one of the two parties usually would profit from awakening dormant voters, that party rather prefers to focus its expenditure on influencing informed voters: the cost of awakening dormant voters is too high compared to the cost of influencing traditional voters. This appear to have been the case in the Brazilian 2014 presidential elections, when the cost was higher, and the reach was lower, for the internet social median strategy to be effective (small s).

Equilibrium 2: Traditional-radical equilibrium.

One of the parties directs its resources towards influencing informed voters, using the traditional campaign strategy, whereas the other party directs its resources towards awakening dormant voters, using the radical discourse based on social media. This will occur if $\xi s\alpha^N < -\phi h$ or $\xi s\alpha^N > \phi h$. In this equilibrium, although one of the parties wishes dormant voters to remain out of the electoral process, the other party has a strong latent preference, and will take advantage of it to leverage its electoral competitiveness. This would happen, for example, if the ruling party has been involved in a deep corruption scandal that has been exposed near the elections, which reduces $(1 - \alpha^N)$, as many voters get tired is being fooled and withdraw from political activism out of disappointment, and, by the same token, makes then more sensitive to radical discourse, increasing s. This appears to have been the case in the Brazilian 2018 presidential elections.

5 Conclusion

This article presents a rationale for the emergence of radicalism in Brazilian 2018 Presidential elections, after decades of politically correct electoral campaigns. Radicalism appears as an electoral strategy that focuses on bringing back to the voting arena citizens that have been dormant, not interested in the political campaigns. When dormant citizens are in reasonable numbers and a party believes that these citizens have a latent ideological bias that favors the party, then it will find it optimal to dedicate resources to awake dormant citizens by using a radical discourse disseminated by means of social network technologies.

The developed model indicates that a radical campaign results from different features of the electoral moment. If we have: (i) many apolitical voters due, for instance, to a strong disbelief in the government; (ii) a strong effect of social media; (iii) the latent ideological bias more extreme; (iv) more access due to more technological development; and (v) less control of the social media because of its inherent conditions, the strategic of a radical discourse becomes too much attractive.

The initial findings of this modeling need to be concluded with a complete solution of the political economy game, including the final campaign contribution decisions of interest groups. Furthermore, the sharp result that proves that a party will either direct its resources to influencing informed voters or to awaken dormant citizens, but not both, is a consequence of the particular form of the linear awakening effect of expenditure on dormant citizens. An extension of the model with a quadratic effect will certainly allow for a less extreme solution where some resources of a party will be allocated in both influencing strategies, which seems to be the case in the 2022 elections in Brazil, for instance.

Another sophistication related to the previous analyses and data mining, like *Cambridge Analytica* did in Donald Trump campaign or in Brexit campaign, could be considered in the model. This would improve the results since represents a possible targeted social media that may change the strategies. For instance, it would be possible to address if traditional campaign got weak for any reason, which would favor social media and probably a radical discourse. Besides, with this type of analysis, it would be possible to understand the ideological bias of the electoral, for instance, if she would awake and remains like this or if there is some tendency of

become dormant again. All these elements would change enormously parties' strategies.

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