

## The Environment in Brazil's 2022 Presidential Election<sup>\*,\*\*</sup>

**Luciana Fernandes Veiga<sup>1,2</sup>**

<https://orcid.org/0000-0001-8854-4827>

**Ednaldo Aparecido Ribeiro<sup>3</sup>**

<https://orcid.org/0000-0002-4005-5108>

**Victor Rabello Piaia<sup>2</sup>**

<https://orcid.org/0000-0002-4890-3650>

<sup>1</sup>Universidade Federal do Estado do Rio de Janeiro. Rio de Janeiro/RJ, Brazil.

<sup>2</sup>Fundação Getúlio Vargas. School of Communication, Media and Information. Rio de Janeiro/RJ, Brazil.

<sup>3</sup>Universidade Estadual de Maringá. Maringá/PR, Brazil

Studies on the environment, public opinion, and voting have shown that, despite widespread support for the environmental cause among the population, this support does not necessarily translate into votes. This article will look into concepts including agenda setting, framing, and media effects to provide a background of how the environment became a prominent issue in public opinion. It will also test hypotheses that argue for the significance of issue decision salience, in conjunction with the issue ownership theory, to explain how the environmental issue influences vote choice. Our research focuses on the 2022 Brazilian presidential election, employing mixed methods that include both quantitative and qualitative techniques. All tests conducted confirmed that emphasizing the environment as a relevant issue and identifying a candidate as its primary advocate increased voters' inclination to support them. This effect persisted even when including controls for other extensively studied factors in voter behavior literature, including the economy, religion, and age. The key conclusion drawn from our study is that the environment holds relevance in the electoral context. Evidence suggests that a relevant factor to understand why the environment and the environmental policy seem to have affected voting intentions (when common knowledge would suggest otherwise) is how the mainstream media and social media have set this agenda.

**Keywords:** Amazon; public opinion; voter behavior; environment.

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Correspondence: Luciana Fernandes Veiga. E-mail: [luciana.veiga@unirio.br](mailto:luciana.veiga@unirio.br)

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Studies involving the environment, public opinion, and voting date back to the mid-1960s in the USA (DUNLAP, 1991). The prevailing perception is that, while the population shows support for the environmental cause, that support does not turn into votes. In Brazil, the scarcity of studies on the topic is confirmed in bibliographical reviews including the one produced by Fairbrother (2022), who addresses the lack of studies on the global warming issue in key countries including China, Russia, India, and Brazil.

Similarly, in a recent panel on green economy held by the Brazilian Political Science Association (Associação Brasileira de Ciência Política—ABCP) during its 2022 national meeting, researchers in related fields argued that political science's participation in the conversations about the effects of the environment on political behavior is still very limited.

To respond to this demand, this article will articulate concepts and theories originating from studies on public opinion and voting behavior. We will draw from the concepts of agenda setting, framing, and media effects to introduce the background of how the environment became a salient issue in public opinion and test hypotheses arguing for the relevance of issue decision salience along with the issue ownership theory to explain how the issue turns into vote choice.

Our research used mixed methods, encompassing quantitative and qualitative techniques and data from Brazilian empirical studies from two different moments. This empirical material includes information from a survey conducted in December 2021 by the Datafolha polling institute, which asked questions enshrined in the literature in terms of testing theories of issue ownership and issue decision salience in voting intention.

We used qualitative data from 24 in-depth interviews conducted immediately after the election to look into the year 2022. We aimed to verify how voters following different voting trends viewed the situation of the environment in the country, the Jair Bolsonaro administration's environmental policy, and how they elaborated on their vote more generally, considering other policies such as the economic policy. Their judgments and narratives allowed us to identify the reasons that can make them consider the environment a salient issue or not, as well as classify the then president Jair Bolsonaro as the issue owner or not.

By combining theoretical concepts, research methods, and analysis, our main finding is that the environment matters to voters, contrary to the common assessment, in academia and civil society, that it would be insignificant election-wise, even though the population may relate to the issue for different reasons. Evidence suggests that, according to theories, a relevant factor to understand why the environment and the environmental policy seem to have affected voting intentions (when common knowledge would suggest otherwise) is related to how the mainstream media and social media have set this agenda.

### **Theoretical review**

The prominence of an issue is a key matter in research on agenda setting, framing, and issue ownership. The agenda setting assumption is that there is a correlation between the prominence that an issue receives in the media, and the salience observed among the audience (McCOMBS and SHAW, 1972).

Meanwhile, the framing assumption assumes that the way an issue is treated in the media can influence the audience's understanding of it (GOFFMAN, 1974; SCHEUFELE and TEWKSBURY, 2007). Entman (1993) argues that to frame is to select aspects of reality and give them prominence in communication to promote a causal interpretation or moral evaluation.

Two dimensions are related to the concept of framing. At the macro level, framing is the way media professionals present information to the audience. At the micro level, it refers to how people use the information passed on by the media to formulate their impressions and understandings (SCHEUFELE and TEWKSBURY, 2007).

In this article, we consider that different actors in society may pay more or less attention to the issues being discussed and, based on them, reward or punish representatives in elections. We also consider that the agenda setting and framing of the news by major media outlets or social media platforms contribute to make a topic salient in the conversation. Issue salience is useful to organize and mobilize the audience. That is, when an issue is not very prominent, it only engages interest groups and a very active audience. When an issue is highly salient, it engages more voters (JANUSCH, 2021).

At this point, we need to establish what issue salience we are addressing. Dennison (2019) has dedicated himself to reviewing the literature on issue salience and verified that, while the concept has always been related to importance and prominence, it can add two different understandings, sometimes generating distortions in research findings: the concept of issue salience from a psychological perspective or from a behavioral perspective. In the former, the concept refers to what people consider important in their everyday lives, not worrying about how such a perception of importance would be considered in a decision-making moment. In the latter, it is important to identify how much the prominence of the issue could affect their choice, thus translating into behavior (which would then be issue decision salience).

Extensive evidence in the literature shows that when an issue becomes prominent in a voter's mind, they start to use the performance of this policy as a parameter to choose candidates in elections (KIOUSIS, STRÖMBACK and MCDEVITT, 2015). This choice procedure is connected to the issue-ownership theory, according to which parties and candidates seek to mobilize voters by emphasizing issues on which they have a reputation and competence. Voters, in turn, tend to reward candidates or parties that are regarded as owners of those issues that are key to them (BÉLANGER and MEGUID, 2008; KIOUSIS, STRÖMBACK and MCDEVITT, 2015).

Studies on voting behavior show that voters prioritize, when choosing a candidate or party, the option where they identify political congruence with the issues they deem to be key issues (DOWNS, 1957). This means that voters tend to choose the candidate who seems most congruent with them in the specific issue or issues they consider most important, even when there is a discrepancy in attitudes toward other issues they regard as less relevant, which is called policy congruence in spatial models.

Amid this discussion, Bélanger and Meguid (2008) address the issue ownership theory and connect it with the issue decision salience theory. They propose that, among candidates, voters identify the one who conveys the most credibility regarding an issue and vote for the politician who seems to them as the owner of the issue. When testing the effect of the issue ownership theory,

the authors point out that voters have to attach importance to an issue for this theory to be explanatory.

Studies on issue ownership then start to emerge, identifying how it operates in highly politically polarized elections. Wright, Clifford, and Simas (2022) argue that the political polarization of the elite could initially reinforce the assumption of the theory, by making partisan differences more explicit. Party polarization would make it clearer what issues they prioritize and what attitudes they have about them. The theory would therefore fit even better.

However, the authors also argue that, on the other hand, affectivity toward a party could arouse feelings that would lead voters to identify the superiority of their preferred party on all issues, regardless of their reputation regarding different issues. As a result, party identity could influence beliefs about party competencies.

There is evidence, however, that political preferences and performance evaluations also influence the perception of issue ownership. This holds true even after considering respondents' partisanship, especially among respondents who have ambivalent feelings toward some of the party's attitudes. (CRAIG and COSSETTE, 2020).

By conducting a survey with voters from the United States, the authors investigated to what extent the perception of which candidate is seen as the owner of the issue is influenced by factors that go beyond political preferences or party affiliation. They found that, while partisan alignment has a significant impact on the assessment of the performance of the candidate who owns the issue, the assessment of that candidate's performance on that issue is also seen as important. They also found that, when voters questioned some attitudes of the party of their choice, this decreased the likelihood of them identifying the party as the most competent party to address the issue at hand. Therefore, the authors argue that it is incorrect to consider the perception of issue ownership as merely an expression of partisan loyalty.

The results of an experiment conducted by the authors show that voter who do not have a clear party identity—that is independent voters—are more sensitive when analyzing the reputation of parties and candidates regarding the issue, as they are free from psychological partisan attachments. Subsequently, issue ownership is

more likely to have a causal effect on vote choice among purely independent voters than among partisan voters.

That is, the literature has been showing that issue ownership should remain as an explanation for voting even in an increasingly polarized environment. In this case, there is a combination of partisanship and evaluation of the values and performances of the parties/candidates regarding a specific issue. It is worth noting that issue ownership can be expected to have an effect on vote choice whenever there is 'a priori' incongruity regarding the issue between the attitude of the participant/voter and the attitude of their favorite party or candidate, considering that not all party supporters have strong ties and preferences.

## Methods

Before introducing our hypothesis, dependent and independent variables, and their instrumentalization, it is worth providing a short description of the context of Brazil's election race. The 2022 elections were marked by the continuity and escalation of the polarization that was already verified in 2018. Throughout 46 days of election campaign, the Liberal Party (PL) candidate, Jair Bolsonaro, and the Workers' Party (PT) candidate, Luiz Inácio Lula da Silva, aimed to keep their constituencies and expand their support among undecided voters. Those who were supposedly waiting for a 'third way' candidate, and there was a strong component of negative propaganda between the two main opponents.

Polls continuously showed Lula da Silva with a relatively constant performance, around 48 percent, having slightly oscillated downwards when the campaign officially started, but resuming his previous levels by the end of the first round. Bolsonaro's rates, in turn, grew slightly in the beginning of the election campaign, from 27 percent to 34 percent, according to Datafolha polling figures<sup>1</sup>.

By the end of the first round, Lula da Silva had 48.43 percent and Bolsonaro had 43.20 percent of votes. While the PT candidate's performance was previously demonstrated in opinion polls, Bolsonaro recorded unexpected growth. In third place, Simone Tebet (MDB) had 4.16 percent of votes, and in fourth place, Ciro

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<sup>1</sup>Source: Poder 360 research aggregator, available at < [Research Aggregator | Poder360](#)>.

Gomes (PDT) had 3.04 percent. In the runoff election, Lula da Silva had 50.9 percent of valid votes, and Bolsonaro had 49.1 percent, indicating a highly polarized scenario.

## Hypothesis

In this study, we aimed to test the following hypothesis, the structure of which has been based on the issue ownership (IO) and issue decision salience (IDS) theories.

H1: The more important voters find the environment issue, the higher the chance that they will choose the candidate they believe has the most credibility regarding the issue.

We tested a typology adapted from Kiouisis, Strömback, and McDevitt (2015)<sup>2</sup> (Table 01), who recommend the conduction of a study with macro-level data—ideally transnational data or time series data—to identify the impact of IDS and the incumbent’s performance regarding specific issues in election results.

**Table 01.** Typology suggested by Kiouisis et al. (2015)

Issue salience	Perceived Incumbent Performance	
	Successful	Unsuccessful
Low	IDS not relevant Incumbent victory	IDS not relevant Factors other than issue ownership impact election.
High	IDS contributes to retention of issue ownership: Incumbent victory	IDS may contribute to challenger victory.

Source: Kiouisis et al. (2015).

We proposed adjustments to adopt it at the micro level (Table 02) aimed to establish the effect of the two explanatory variables, IDS and IO, separately and combined, on voting intention. For this purpose, we calculated the predicted probabilities that combine the effects of the two measurements for the choice of each pre-candidate.

<sup>2</sup>Importantly, the authors did not test this typology.

**Table 02.** Typology to be tested in this study

Issue salience Issue Decision Salienc (IDS)	Issue owner Issue Ownership (IO)	
	Bolsonaro	Lula da Silva
Low	IDS not relevant Factors other than environment issue ownership may impact election.	IDS not relevant Factors other than environment issue ownership may impact election.
High	Relevant IDS contributes to reinforce vote in incumbent-issue owner.	Relevant IDS contributes to vote on the challenger.

Source: Elaborated by authors.

## Data and Methods

### Quantitative phase

For the first phase of the study, we used information from a poll conducted by the Datafolha Institute in December 2021, with a national sample of 3,666 interviews. The data are publicly available on the website of the Public Opinion Center of the University of Campinas (CESOP/UNICAMP). The poll was conducted ten months before the presidential election, but it already asked closed-ended questions about voters' intentions, providing the names of the two major presidential candidates, who ultimately competed in the 2022 runoff: Lula da Silva and Bolsonaro.

This specific survey was chosen because it looked into three essential issues we are interested in. It addressed presidential voting intention and presented measurements on respondents' perception of both the salience of the environmental issue and the candidates' reputation and competence.

We considered presidential voting intention in December 2021 as a dependent variable to analyze the issue ownership and issue decision salience theories. Datafolha's close-ended question about voting intention was: 'Some names are already being considered as presidential candidates in 2022. If the presidential election were happening today and the candidates were these (Lula da Silva, Jair Bolsonaro, Ciro Gomes, Simone Tebet, João Doria, Sérgio Moro, Aldo Rebelo, Alessandro Vieira, Rodrigo Pacheco, Felipe D'Avila), for whom would you vote?' The variable was recoded so that Jair Bolsonaro appeared as a reference category. Moreover, the recoding considered voting intention regarding Lula da Silva, Ciro

Gomes, and Others. These are the shares for this dependent variable: Lula da Silva (45.7%), Bolsonaro (21.5%), others (25.6%), and Ciro Gomes (7.2%).

According to previous studies on issue ownership (BÉLANGER and MEGUID, 2008), voters' opinions on the relevance of issues and the candidate who has the most competence and reputation to deal with each of them should be considered as independent variables. Following previous studies (BÉLANGER and MEGUID, 2008; KIOUSIS, STRÖMBACK, and MCDEVITT, 2015), the first independent variable is issue salience and it derives from the following question: 'considering a score from 0 to 10, where 0 is not important and 10 is very important, how important do you consider it that the next president of Brazil is prepared to take care of the environment?' Respondents' responses to this question indicated a strong salience of the environmental issue, as more than 80 percent of responses were at the highest score on the scale (10). We therefore chose to recode it as binary, discriminating precisely this group of respondents who regard it as highly important, which comprise 81.3 percent of the sample.

Once again, based on previous studies on issue ownership, we considered issue ownership as the second independent variable, obtained through the following question: 'In your opinion, which of these pre-candidates is most prepared to take care of the environment?' To make it easier to view and later interpret the results, once again, we highlighted the three main pre-candidates when the data collection was carried out and grouped the others within the 'others' category. Lula da Silva appears as the most prepared candidate regarding this issue, with 50.1 percent of mentions, followed by Bolsonaro (21.4%) and others (20.1%). Ciro Gomes is the least frequently mentioned candidate, with 8.3 percent.

The descriptive data suggest the possibility of a pattern in which relating to a candidate can, by analogy, inform the perception of ownership regarding different issues. When addressing this challenge, Bélanger and Meguid (2008) mentioned that, even if there is a correlation between partisanship and the acknowledgment of issue ownership, this bias should not be overestimated. They assess that large parts of the population have no party identification or do not feel specially close to a candidate. For this reason, at least among these segments of the population, party competence is far from being predetermined by partisan identification. The authors

add: “The proportion of partisans not naming their party as most competent is about 37% on the jobs issue, 50% on crime, 51% on social programs, and 52% on taxes. Perceptions of party competence, thus, are far from being entirely predetermined by partisan identification” (BÉLANGER and MEGUID, 2008, p. 483).

In the case of this research, we were also able to verify the fluctuation of each candidate’s ownership regarding different issues. For example, Lula da Silva’s prestige in the general voting intention drops from 46 percent to 38 percent when it comes to owning the issue ‘fighting violence’ and to 34 percent when the issue is ‘corruption’, while Bolsonaro’s rates for the same issues are 24 percent and 22 percent, respectively, and Sergio Moro’s rates are 16 percent and 18 percent. When it comes to fighting hunger, Lula da Silva’s authority rises to 58.7 percent. The descriptive results are congruent with the literature that points out that issue ownership explains the vote even in an increasingly polarized environment. There remains a combination of partisan identification and evaluation of the values and performances of the parties/candidates regarding that issue.

### **Qualitative phase**

We decided to move forward in time, from 2021 to 2022, to address some of the discussion about the impact of the environmental agenda on the electoral reality itself. Unfortunately, we do not have a survey like the one from November 2021 to provide updated quantitative data, but following the current methodological trend, which not only accepts but encourages the use of mixed methods, we included qualitative methods in the study.

We then resorted to in-depth interviews with twenty-four ordinary voters interviewed in December 2022, shortly after Luiz Inácio Lula da Silva’s victory. The interviews were conducted by the author of this article over Zoom and followed a script that addressed the assessment of President Bolsonaro’s performance in four policies (economic, public security, anti-corruption, and environmental policy) and the reasons for vote choice in the first round and runoff election 2022. Our goal with these interviews was to identify how voters had evaluated the president’s performance on those issues and how their judgment had influenced their vote.

The 24 interviewees were divided into four groups: 01. those who voted for Bolsonaro in 2018 and 2022; 02. those who voted for Bolsonaro in 2018 and in the 2022 runoff, but did not vote for him in the first round 2022; 03. those who voted for Bolsonaro in 2018 but voted for Lula da Silva or spoiled their votes in 2022; 04. those who voted for Haddad in 2018 and for Lula da Silva in 2022. All respondents were from the state of Rio de Janeiro, because the survey was funded by the Rio de Janeiro State Research Foundation (Fundação de Amparo à Pesquisa no Rio de Janeiro—FAPERJ) and was focused on the behavior of Rio de Janeiro voters. A company specializing in qualitative research recruited the interviewees (Table 03).

**Table 03.** Respondent profile

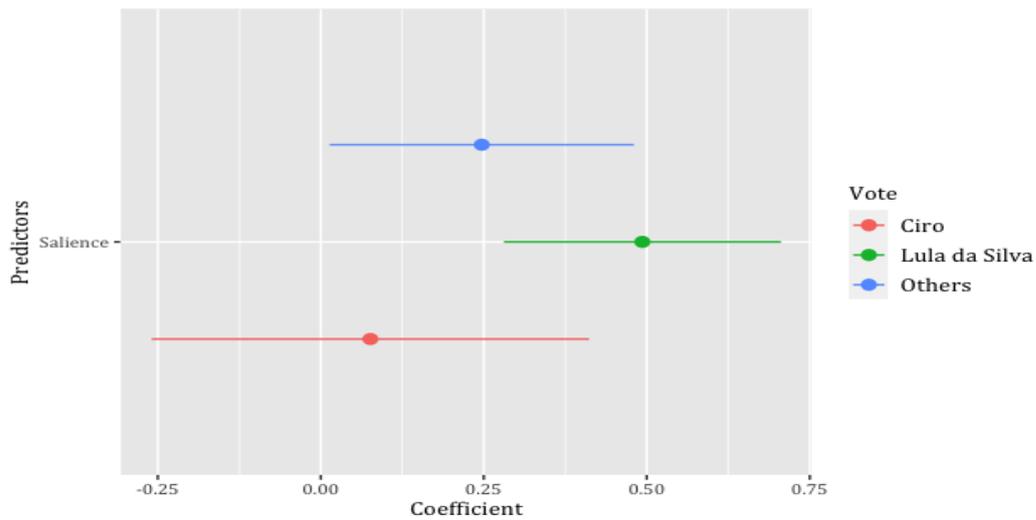
Political profile	Gender	Age	Social Class	Education level	Occupation	City	Religion
Bolsonaro /Bolsonaro	M	49	A (upper)	Higher	Uber driver	Countryside Magé	Catholic
	M	32	C1 (lower middle)	Basic	Municipal guard	Countryside Volta Redonda	Assembly of God
	F	44	B2 (middle middle)	Secondary	Insurance Broker/Military Wife	Capital city	Baptist
	M	27	B2 (middle middle)	Higher	Civil engineer	Countryside Barra Mansa	Evangelical
	F	31	D (working class)	Basic	Sales representative for household linens	Metro Area Duque de Caxias	Assembly of God
	F	22	A (upper)	Higher	Farm supply business owner/ farmer	Countryside Volta Redonda	Catholic
	M	46	B2 (middle middle)	Higher	Farm supply business owner/ farmer	Countryside Vassouras	Baptist
Bolsonaro/ Simone Tebet/ Bolsonaro	F	25	C1 (lower middle)	Secondary	Silver and beauty product retailer	Capital city	Catholic
	M	41	B2 (middle middle)	Secondary	Seller of disposable products - Sole micro-entrepreneur	Capital city	Baptist
Bolsonaro/ Blank/ Bolsonaro	M	41	A (upper)	Higher	Farmer	Countryside Paulo de Frontin	Baptist
	M	41	B2 (middle middle)	Secondary	Municipal guard	Metro Area SJ Meriti	Umbanda practitioner

	F	30	C2 (skilled working class)	Secondary	Packed meal vendor	Countryside Volta Redonda	Assembly of God
Bolsonaro/Spoiled	F	38	C1 (lower middle)	Secondary	Grocery cashier	Metro Area Niterói	Baptist
	M	35	A (upper)	Higher	Car parts dealer	Capital city	Agnostic
Bolsonaro/Blank	M	34	C2 (skilled working class)	Secondary	Hod carrier	Metro Area Nova Iguaçu	Agnostic
Bolsonaro/Lula da Silva	F	39	B2 (middle middle)	Higher	Business manager	Capital city	Umbanda practitioner
	F	30	D (working class)	Secondary	Snack food truck owner	Metro Area Duque de Caxias	Catholic
	M	28	C2 (skilled working class)	Secondary	Production assistant	Capital city	Catholic
Haddad/Lula da Silva	F	34	B1 (upper middle)	Higher	School secretary	Capital city	Catholic
	M	50	A (upper)	Higher	Architect	Capital city	Baptist
	F	53	C1 (lower middle)	Secondary	Confectioner	Metro area SJ Meriti	Umbanda practitioner
	F	43	D (working class)	Secondary	Elder care caregiver	Capital city	Candomblé practitioner
	M	37	D (working class)	Basic	Housekeeping supervisor	Metro Area SJ Meriti	Catholic
	F	38	C (middle)	Secondary	Electrician	Countryside Itaperuna	Evangelical

Source: Collection of in-depth interviews conducted for this project.

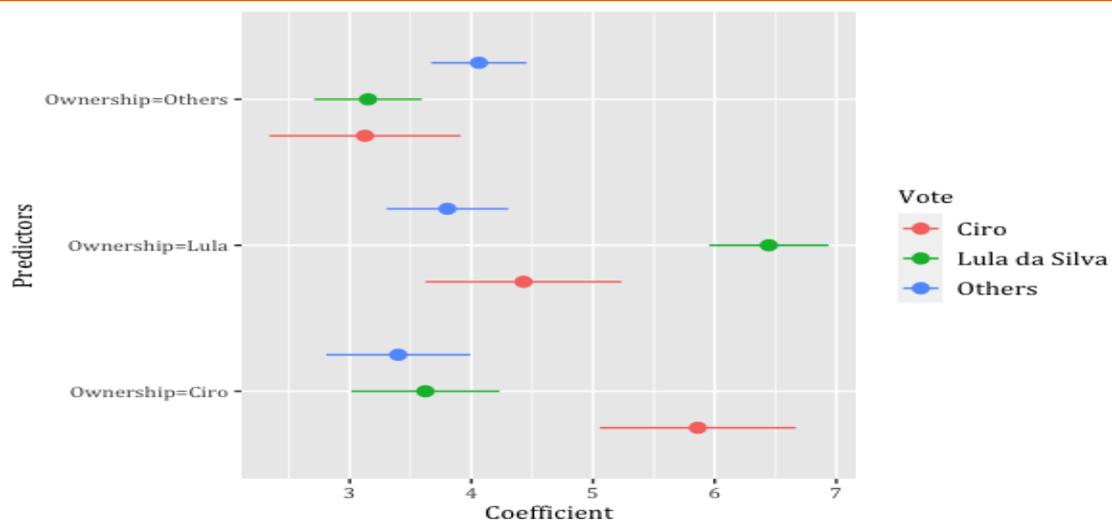
### Issue salience, issue ownership, and presidential voting intention

We initially tested the isolated and combined effects of the two predictors—issue salience and issue ownership—without adding the controls enshrined in the literature regarding voting and presidential assessment. Graph 01 shows the effects of the salience of the environmental issue on the probability of voting for each candidate, always in comparison with the chances of voting for Bolsonaro, indicating positive and statistically significant effects for the vote for Lula da Silva and Others. Perceived maximum issue salience increases the chance of voting for the PT pre-candidate by 64 percent and of voting for Others by 28 percent.

**Graph 01. Issue salience (predictor 01)**

Source: Datafolha Institute poll conducted and released in December 2021.

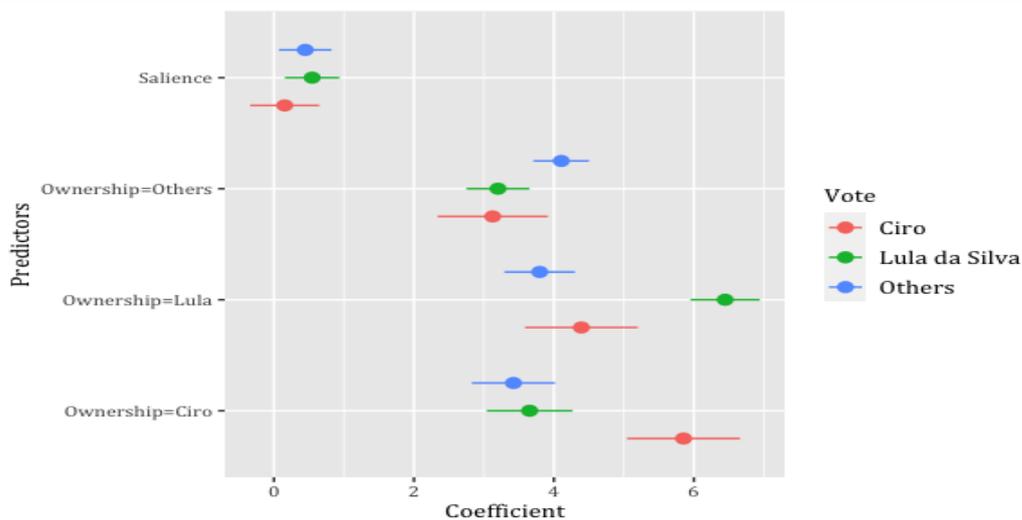
The model that has the ownership measurement as its only predictor (Graph 02) indicates overall positive effects. The likelihood of voting for all candidates increases when they are identified as more prepared to take care of the environment—some with impressive results, including Lula da Silva, whose chances of being chosen by voters increased by fivefold. This result confirms the previous one, pointing to the relevance of the environmental aspect when choosing one of these pre-candidates.

**Graph 02. IssueOwnership (predictor 02)**

Source: Datafolha Institute poll conducted and released in December 2021.

The effects of these two variables remain significant when they are inserted simultaneously in a single model (Graph 03), including gains when it comes to salience, which impacts the chances of voting for Lula da Silva by 73 percent and voting for Others by 56 percent.

**Graph 03.** Issue salience and issue ownership (predictors)

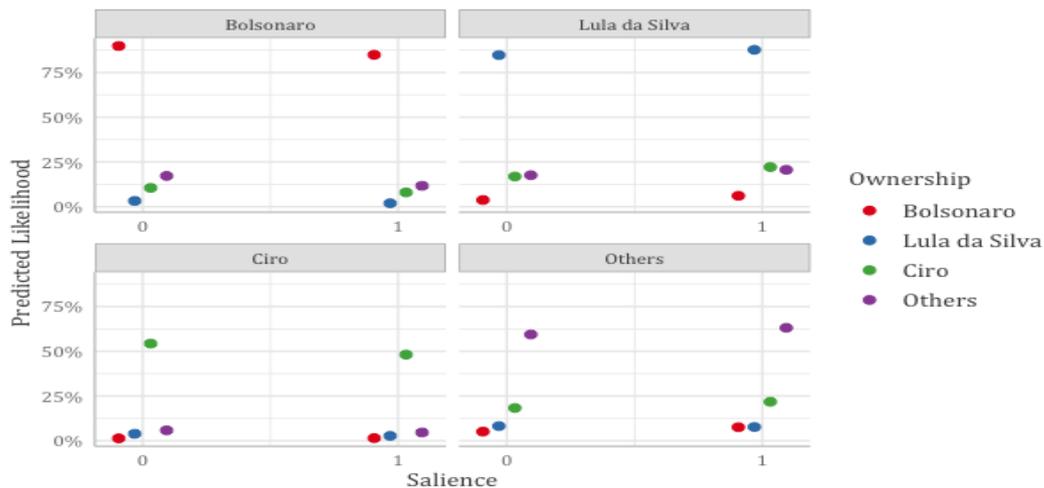


Source: Datafolha Institute poll conducted and released in December 2021.

Importantly, an analysis of predicted probabilities should complement these initial results, combining the effects of the two measurements (Graph 04) for each pre-candidate choice. The first table shows that the likelihood to vote for Bolsonaro, even among those who identify him as the most prepared name to take care of the environment, drops slightly among those who regard the issue as highly relevant. The likelihood to vote for Bolsonaro among voters who see him as the most prepared candidate when it comes to the environment and consider it a very relevant issue in their choice is 84 percent, while, among those who are not very concerned about it, there is a 90-percent likelihood to vote for him. Meanwhile, the opposite happens with Lula da Silva (second table), for whom the likelihood to vote is slightly higher when there is an interaction between the two measurements (second table). Among those who identify Lula da Silva as the most prepared candidate and consider the environment a highly relevant issue, there is an 88-percent chance of voting for the PT candidate, while among the group of voters who are the least concerned about it there is an 84-percent chance. The Ciro Gomes table shows a similar scenario to that of Bolsonaro, as the likelihood to vote for him is

higher among those reporting the least salience. A similar movement to that identified for Lula da Silva is found in the group that combines the other candidates, as voters who consider the issue highly relevant are more likely to vote for them. The same trend is seen when other candidates are considered.

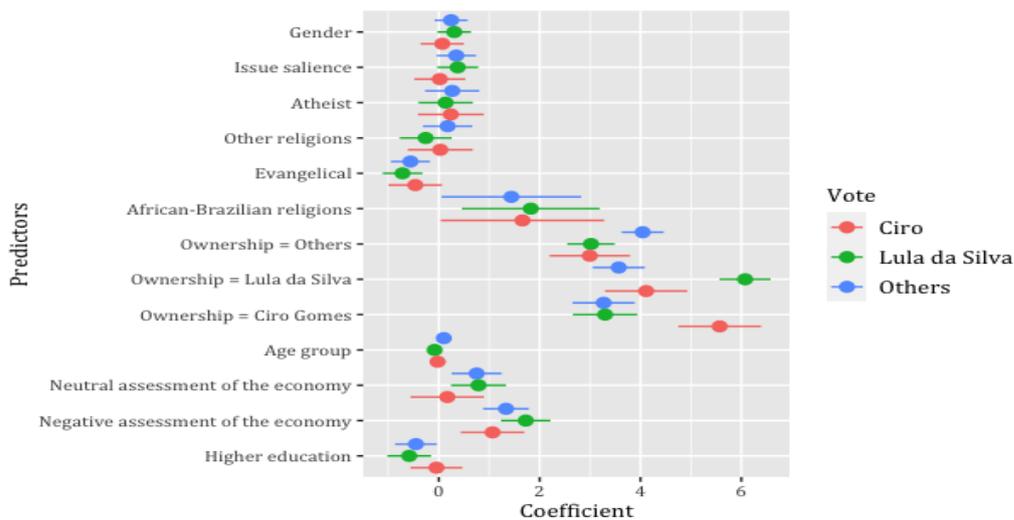
**Graph 04.** Predicted likelihoods combining issue salience and issue ownership



Source: Datafolha Institute poll conducted and released in December 2021.

To confirm these effects, however, controls that are already documented in the literature must be included. Sociodemographic factors such as gender, age, education level, and religious denomination are relevant predictors in vote choice, in addition to the sociotropic assessment of the economy. Graph 05 shows that, even when including these important predictors, issue salience and issue ownership measurements continue to have visible effects, although, in the former's case, we have to consider the hypothesis test as one-tailed ( $p < 0.10$ ).

Even with all controls, the salience of the environmental issue increases the likelihood to vote for Lula da Silva by 45 percent compared to votes for Bolsonaro. This rate grows by 40 percent for Others and by 02 percent for Ciro Gomes. The effects of the ownership measurement remain the most significant, even in this complete model that shows great relevance of religious denominations, education level, and the assessment of the economy.

**Graph 05.** Issue salience and issue ownership (predictors) and controls.

Source: Datafolha Institute poll conducted and released in December 2021.

A final, more rigorous model was also proposed, including the salience of the 'economy' issue as an additional control. The results indicate the persistence of the effects of the two measurements related to the environment in differentiating the likelihood to vote for Bolsonaro or Lula da Silva, confirming the previous findings, even without significant loss of effect.

All tests confirm the assumptions of the issue salience and issue ownership theories. In other words, taking the environmental issue as prominent and identifying a candidate as the owner of the issue increases the predisposition to vote for this contender, even when controlled by other explanatory variables enshrined in the international and national literature on their impact on the vote, including the economy, religion, and age.

However, it is worth returning to the proposed typology to verify that, of the four expected behaviors based on the literature review, only one was not confirmed (Table 02). Considering the environmental issue as highly prominent would be expected to reinforce the intention to vote for the then incumbent president when he is considered the owner of the issue, which was not the case. The opposite happened, as shown in Table 04.

**Table 04.** Typology to be tested in this study

Issue salience	Issue owner (%)	
	Bolsonaro	Lula da Silva
Low	90	84
High	84	88

Source: Elaborated by authors.

While the results largely prove the issue salience and issue ownership theories, they pose new questions about how Bolsonaro and Lula da Silva managed to be known as owners of the environmental issue.

As shown in the literature on issue ownership in contexts of political polarization, there is a tendency to combine partisan identification with an assessment of the values and performance of the two former presidential leaders regarding the issue. Preferences for Bolsonaro or Lula da Silva are thus expected to have aroused a more favorable assessment of one or the other regarding the identification of the issue owner.

We conducted alternative tests to verify how much voting intention could also be influencing the perception of a candidate as the issue owner. The results showed statistically significant effects in this sense. Among interviewees who intended to vote for Lula da Silva, there was a 334-percent higher chance of considering him the owner of the issue. We had found that considering Lula da Silva the most prepared candidate to take care of the environment increased the chances of voting for him by fivefold. We are thus facing a mutual influence between these variables, although the effect is greater in the direction proposed in this article. Both things happen simultaneously: the intention to vote for a candidate is chosen and he is defined to be the owner of the environmental issue. This does not preclude a conclusion about the existence of a strong connection between assigning the ownership of the environmental issue and vote choice.

The results corroborate the importance of considering the 'issue ownership' variable in studies on voting behavior, even in a scenario of increasing polarization. Even in circumstances where there is previously a preference, whether for a specific party or candidate, we can anticipate the influence of the congruence between where the voter/participant and the candidate stand regarding the issue. This is because not all supporters have deep-rooted bonds with them.

It is also necessary to identify how the arguments that support these attitudes have been built in the media, on social media, and in everyday conversations in the offline world.

### **The salience of the environment and its framing in Bolsonaro and Lula da Silva's issue ownership on social media**

This part of the article aims to present the politicization of the environment on social media, producing salience and assigning responsibility or blame, including to third parties. According to a 2021 report, by the Department of Public Policy Analysis of the Getúlio Vargas Foundation (Diretoria de Análise de Políticas Públicas da Fundação Getúlio Vargas—FGV DAPP), there is great polarization regarding issues including deforestation, climate change, energy mixes, and Indigenous peoples' struggles, mostly spearheaded by environmental activist organizations, political and civil society leaders, as well as government agencies and the economic sector. These digital strategies aim to get exposure and engagement from public opinion.

For this, we mapped the informational context in which issue salience and issue ownership by the candidates were built. The quantitative data used in the previous section come from a Datafolha poll from December 2021. It is possible to complement them through the social media monitoring regarding environmental issues conducted by the FGV DAPP in the same period. (RUEDIGER et al., 2021). These data will be presented in order to verify how issue salience, framing, and issue ownership were built on social media. That is, as the two studies were carried out in the same period, we consider it appropriate to look into both of them together in the analysis.

The FGV DAPP study analyzed approximately 1.6 million posts about the environment on Facebook and 10 million posts on Twitter, from June to September 2021. Topic modeling was used as a methodology throughout the collected text to bring out the main topics that are mentioned, and the most relevant issues that emerged were the following: 01. technologies and the environment, 02. family farming, 03. water crisis and energy issues, 04. wildfires and environmental damage, and 05. government, public policies, and civil society.

In terms of who has the power to set the agenda on social media, we highlight four groups that proved to be very active. They are:

01. Civil society organization, including alternative media channels, mobilized by issues regarding the environment and human rights of forest peoples. We highlight the following profiles among them: Povos Indígenas do Brasil (Indigenous Peoples of Brazil – @AbipOficial); Conselho Indigenista Missionário (Indigenous Missionary Council – @ciminacional), an organization connected to the National Confederation of Bishops of Brazil; the Comissão Pró-Índio de São Paulo (Pro-Indian Commission of São Paulo – @Proindio), the profile @TamoioArt, the Indigenous journalists Karibuxi and Alice Pataxó, the Indigenous leader Sônia Guajajara, Mídia Ninja, and Quebrando o Tabu.
02. Journalists, digital influencers, and traditional media outlets, among which we highlight the journalists André Trigueiro and Andréia Sadi, the influencer Lucas Neto, and the news channel G1.
03. Politicians opposed to Bolsonaro, including Lula da Silva, Marcelo Freixo, Talíria Petrone, @AndreJanones, @depmarcomaia, and @gleisi.hoffmann.
04. Politicians and media outlets that support Bolsonaro, especially @jairmessias.bolsonaro, @ZambelliOficial, @biakicisoficial, @filipebarrosocial, and @carlosjordyoficial.

We found that, according to the report (RUEDIGER et al., 2021), organized society, journalists, influencers, artists, and athletes are mobilized in favor of environmental policies. They mostly take part in conversations about issues including ‘technology and environment’ and ‘wildfires and environmental damage’. These segments proved to be very active in the discussion about a legal framework being reviewed by the country’s Supreme Court, reinforcing the connection between the environmental agenda and the Indigenous agenda. They also tended to address the advance of deforestation and wildfires in the Amazon and the Pantanal, especially during the Bolsonaro administration. They also used to bring up the global warming issue.

Meanwhile, the discussions around 'water crisis and energy issues' and 'food and family farming' were spearheaded by political groups supporting or opposing the government. There was political polarization between those who support or oppose the government regarding the former, when the opposition held the federal government responsible for the high power and fuel prices and their economic impact on Brazilian families. The government in turn presented actions to reduce energy and fuel prices and held state governors responsible for the impact of taxes, which affect the population's cost of living.

As for the latter issue, the conversation is more aligned on the left-right scale. The left was closer to the discussion about land rights, while the right was closer to the issue of agricultural production for export and weapons in the countryside. Both, however, seek to control the issue of small rural producers and environmental protection.

The analysis of the social media conversations conducted by the Ruediger et al. (2021) shows that platform users generally recognize the occurrence (and emergency) of wildfires in Brazilian forests, even though they may consider that their causes and the responsibility for them are connected to different agents and actors.

Also regarding wildfires, the focus was mainly on their consequences, at first, for wild animals and plants, and for the Indigenous populations who live in these biomes; more broadly, the focus was on the long-term damage caused by these events, connecting them to the increasingly worse global climate crisis.

Notably, the then president tried to provide his followers with evidence showing that he had control over the environmental agenda, in an attempt to stop organized society dedicated to the environment and Indigenous causes, as well as journalists and influencers who supported these causes and opposition parties, from increasingly controlling the environmental issue. When the issue was 'wildfires and environmental damage', this segment of profiles sought to minimize criticism against the federal government, advocating for 'Operation Guardians of the Biome', aimed at fighting wildfires and preserving Brazilian biodiversity.

The president's allies were active on the issue 'food and family farming', for example. The discussion tends to converge towards the country's food supply, with appreciation of small rural producers. Much of the engagement focuses on news

content about: 01. agribusiness revenues in Brazil; 02. more than 50,000 land tenure titles granted by the federal government to families settled and occupying public lands in Pará state; 03. provisional measure to support small cattle ranchers sourcing corn.

On ‘water crisis and energy issues’, the profiles advocated for federal government actions to reduce taxes and lower fuel prices, holding state governments responsible for any tax hikes. Regarding, more specifically, the environment and the debate between the federal government and environmentalist groups—and not parties in the opposition—, the government addresses the water crisis by connecting it to technology, seeking solutions to the scarcity of rainfall and its impacts, while the environmental group considers deforestation the main cause of drought and its resulting problems.

### **The salience of the environmental issue and its framing in Bolsonaro and Lula da Silva’s issue ownership in ordinary men’s conversations**

This part of the article looks into the second moment of the research, regarding 2022 data. We continue to explore the concepts of agenda setting and framing and, for this purpose, we will mention a study conducted during the 2022 election campaign (to have some understanding of the traditional press coverage) as well as analyze the interviews mentioned in the methodology section.

The survey by InfoAmazonia and PlenaMata (2022) watched the interviews with presidential candidates on Rede Globo (TV channel), the presidential debate broadcast by Rede Bandeirantes and how Twitter reacted to it on forest-related issues, as defined by the language rules: ‘Amazon’, ‘deforestation’, ‘land grabbing’, ‘wildfires’, and ‘Indigenous peoples’, between August 21<sup>st</sup> and 30<sup>th</sup>, 2022.

Regarding how the environmental agenda was set and framed, the results notably show that Bolsonaro was asked 28 of the 64 questions related to the environment on the news program ‘Jornal Nacional’, including questions about the deforestation surge in the Amazon and the dismantling of inspection guarantees—which he denied. Bolsonaro also criticized the destruction, by inspection authorities, of tractors owned by people who committed environmental

violations, and blamed riverside communities for the wildfires (InfoAmazonia and PlenaMata).

The mapping of discussions on Twitter revealed that one in five messages found through searches between 08 p.m. and midnight (on that August 22<sup>nd</sup>) were about deforestation. One in eight mentioned the Brazilian environmental agency Ibama (InfoAmazonia and PlenaMata, 2022).

Bolsonaro's Twitter bubbles made an effort to not hold the president accountable for the deforestation and mentioned, for example, that, during previous administrations under the Workers' Party (PT), deforestation rates were higher than they were under Bolsonaro (InfoAmazonia and PlenaMata, 2022).

The reaction of people connected to the forest, in turn, was to hold the then president responsible for environmental crimes and to highlight his stance against the work conducted by inspection agents, condemning his denialist conduct. Bolsonaro's statement arguing that the wildfires in the Amazon were natural was also rebutted.

Also according to the study conducted by InfoAmazonia and PlenaMata, in Lula da Silva's interview with Rede Globo, he was not asked about the Amazon. He did, however, bring up the issue to contrast agribusiness and environmental concerns. On Twitter, that same night on August 25<sup>th</sup>, the then presidential candidate said that a sector in agribusiness is pro-deforestation. On Twitter, there was contention between users who are closer to agribusiness and users closer to the Landless Workers' Movement (MST).

The study illustrates how setting the agenda and framing the environmental issue took place in two highly visible news programs during presidential election campaigns broadcast by the TV channels Globo and Bandeirantes. It also shows how they find echo on social media.

Next, we will introduce the framing of the environment and the identification of the issue owner formulated by ordinary voters in their conversations in the offline world. Many arguments presented by the 24 interviewees bear similarities to those spread through the traditional media and social media.

The descriptions of the debates on the environment in the media and on social media and the opinion poll results suggest a theoretical proposition that there

is a connection between agenda setting and framing with issue salience and issue ownership before and during the election campaign.

In-depth interviews with 24 ordinary voters were conducted and predominantly showed the assessment that the environment is an important agenda, that it received little attention in public policy making, and that the current situation has led to negative feelings such as sadness and concern.

As for the salience of issue, there were no mentions about the environment being an unimportant agenda—on the contrary, interviewees expressed their attachment to and concern with the issue. Regardless of their electoral-political attitude, the most recurrent image that comes to their minds when they think of the environment in Brazil is an image of deforestation and wildfires in the Amazon. That is, there was virtually an unanimous assessment that the environmental policy was not working in the country.

- Wildfires in the Amazon (voted for Bolsonaro in 2018 and 2022).
- Deforestation, pesticide use, and air and water pollution. Feeling of powerlessness. (voted for Bolsonaro in 2018 and 2022).
- The image is the Amazon on fire. I feel sadness (voted for Bolsonaro in 2018 and in the 2022 runoff, but voted for a different candidate in the first round 2022).
- Our forest is on fire, our forest that is our genesis (voted for Bolsonaro in 2018 and in the 2022 runoff, but voted for a different candidate in the first round 2022).
- Droughts and wildfires in the Amazon and the Pantanal. The world is really ending, will there be a tomorrow? We are ruining our lives, our rivers, and our seas. In the wildfire, the animals become desperate to the point that a boa constrictor let a firefighter pour water in its mouth. The feeling is one of sadness and powerlessness (voted for Bolsonaro in 2018 and in the 2022 runoff, but voted for a different candidate in the first round 2022).

- So much deforestation, I feel sadness. Our health is at risk, global warming affects everyone (voted for Bolsonaro in 2018 and in the 2022 runoff, but voted for a different candidate in the first round 2022).
- The image is of fire rising in our country. The population is trying to put it out and the politicians are not. Sad to see the Amazon being destroyed, Brazilwood being extinguished. We need air. Human beings are not looking at nature (voted for Haddad in 2018 and for Lula da Silva in 2022).
- I see the image of deforestation and disasters like the one in Petrópolis (voted for Haddad in 2018 and for Lula da Silva in 2022).

There is also a predominantly strong diagnosis that there was a lack of oversight to prevent crimes in the Amazon and environmental crimes more generally. From this argument, attitudes begin to differ depending on each interviewee's electoral-political attitude. The most striking attitude seen in interviewees who voted for Bolsonaro in 2018 and 2022 compared to other respondents is that they are more likely to not hold Bolsonaro responsible for the environmental maladies they identify. The in-depth interviews showed the paths they take in this direction.

Their most recurring argument for not holding Jair Bolsonaro responsible for the situation in the Amazon was to equate his performance with his predecessors' performance. Six participants mentioned that Bolsonaro had the same negative results in terms of environmental conservation as his predecessors. They say that 'they were all bad' and that 'there has always been deforestation'. "Bolsonaro was like all the others. Absolutely useless, who did nothing (voted for Bolsonaro in 2018 and in the 2022 runoff, but voted for a different candidate in the first round 2022).

There was also a very recurring judgment that the government cannot be held responsible for something that should be a commitment taken on by all Brazilians. So taking care of the environment is everyone's responsibility. This is a very common argument in public opinion across different areas of public policy making. When it comes to assessing the economy, for example, in terms of unemployment rates, there is an argument that it is up to each unemployed person

to look for a job. When assessing education, education is said to come from home, from the family. There is always a way not to assign the authority the responsibility.

These are culturally backward people who set [the forest] on fire (voted for Bolsonaro in 2018 and 2022).

They really lack education and culture. People have to throw out the trash. Bolsonaro did what he could (voted for Bolsonaro in 2018 and in the 2022 runoff, but voted for a different candidate in the first round 2022).

A conspiracy theory was also reached to advocate for former President Bolsonaro's performance. In the narrative of the conspiracy theory, there is always a target, usually seen as a persecuted victim, of an enemy considered to be the executioner, capable of using fraud to achieve their purposes of subjugating the other. According to this argument aimed at not holding Jair Bolsonaro responsible, he is the president who was unable to deliver better environmental results because he was a victim, persecuted by his enemies. In this sense, the president's specific enemy when it comes to the environment is the environmental movement, which—according to the narratives presented—is able to set the Amazon on fire to tarnish the federal government's image and raise more resources for its institutions. The Brazilian Supreme Court (Supremo Tribunal Federal—STF) was also presented as an opponent of Bolsonaro, stopping him from conducting inspections to prevent crime in the Amazon. Conspiracy theories, it should be noted, are recurrently pointed out as a very common strategy in the communication of President Bolsonaro's supporters, most notably during the COVID-19 pandemic crisis.

People set the Amazon on fire to incriminate others. There are too many environmental movements (voted for Bolsonaro in 2018 and 2022).

Troubling. Too many wildfires are happening. Their origin is unknown. They talk about the government, they say it's an NGO to raise money. The environment pays the price. The seasons are becoming less and less well defined, it's all caused by man. Wild animals like boa constrictors and jaguars are losing their habitat. In any case, Bolsonaro was horrible, as many people say he turned a blind eye and cooperated with the deforestation in the Amazon (voted for Bolsonaro in 2018 and for Lula da Silva in 2022).

I picture the environment in Brazil as the Amazon on the map with a little sign. On one side of it, it reads 'Save the Amazon' and on the other it reads

'Money'. Many people say they defend the Amazon, but they want to take advantage of it. Many people wanted to be against him. But he was not one of the worst (voted for Bolsonaro in 2018 and 2022). Bolsonaro tried, but they hindered him. He put the Federal Highway Police and the Federal Police to work, but the STF did not allow (voted for Bolsonaro in 2018 and the 2022 runoff, but for a different candidate in the first round 2022).

Residually, there were two other arguments used to not hold the former president responsible. The first one was related to the perception that global warming is not a consequence of man's actions, and it would be happening despite any efforts to stop it. Many studies on the environment and public opinion measure the engagement in this rhetoric. The second argument is that Brazil tends to be more protective of the environment than developed countries. They therefore reject any criticism from abroad in this sense.

The environment. The earth goes through cycles and mass extinctions. There have been many extinctions and it has nothing to do with man's intervention. The Earth goes through cycles, regardless of human action (voted for Bolsonaro in 2018 and for Lula da Silva in 2022). Also, the Amazon is not the lungs of the world. In Europe, there are many countries where they burn firewood and use charcoal. They're not preserving anything. One should be concerned about the environment, but without the radicalization that the media and Greenpeace propose (voted for Bolsonaro in 2018 and for Lula da Silva in 2022).

These are reasons presented by Bolsonaro voters in 2018 and 2022 and even by voters who voted for Bolsonaro in 2018, but for Lula da Silva in 2022, to avoid holding the former president responsible for the situation of the environment. However, not all respondents agreed that the former president was not responsible for those environmental outcomes.

It appears that participants who showed some level of distance with Bolsonaro in relation to the past, while continuing to vote for him, were critical of his attitude towards the environment. What would have been the key for them to move away from the president's views when it comes to environmental conservation? Crime in the Amazon. The perception that environmental crime was being committed — illegal deforestation and illegal mining —, animals were being killed, and, above all, militia groups were promoting, in Indigenous lands, the same level of bloodshed seen in urban communities caused voters who voted for

Bolsonaro in 2018 to take a more critical attitude or even decide not to vote for him in the following election.

The situation of the environment in Brazil is critical, they have to get inspectors out there. Fantástico [television news program] showed miners tearing up land and getting to the Indigenous lands, and Ibama staff saying they need more people [to do their inspection job]. Bolsonaro was neglectful about this. The Amazon and the Pantanal were burning and he was being rude about it, as always (voted for Bolsonaro in 2018 and the 2022 runoff, but for a different candidate in the first round 2022).

It has become much worse in recent years. Deforestation is actually necessary for the country to evolve. Europe did it. But they are destroying it at a bargain price. We have seen urban violence going to the countryside. Illegal mining leads to violence. The gringo journalist was murdered. Is the gringo more concerned about my country than I am? The whole world needs conservation. Look at the rains causing destruction across the world. The president was too soft letting things happen. He ruled for agribusiness, I agree with him on this aspect, but he let things get out of control. After NGOs left, he lost control, then crime, deforestation, and catastrophes happened (voted for Bolsonaro in 2018 and the 2022 runoff, but for a different candidate in the first round 2022).

The prevalent perception among respondents who voted for Haddad in 2018 and for Lula da Silva in 2022 was that Bolsonaro was negligent. But they display little knowledge and great uncertainty about what the former president actually did regarding this issue. "Our household trash should be handled better. It would help the environment. I did not seek news about Bolsonaro nor did I hear bad news about it. The responsibility lies with the government and us (voted for Haddad in 2018 and for Lula da Silva in 2022).

## Conclusions

This study aimed to provide a contribution to political science researchers who are dedicated to investigating presidential approval ratings and economic voting, by measuring the effect of the environment on endorsement for the president. It also aimed to contribute to communication studies by bringing together the concepts of issue salience, issue ownership and media effects (agenda setting and framing) regarding the environment.

It can also be seen as a methodological exercise. US researchers often say mixing bananas and apples in the same basket is a positive thing, as they advocate for mixed methods. We combined here quantitative — poll — and qualitative — in-depth interviews — techniques, also mentioning studies that monitor social media and traditional media outlets. We believe they played complementary roles in the challenge of mapping and connecting today's plural information environment.

While social media monitoring surveys are robust instruments to monitor public debate and provide important clues about the relevance of issues and who owns them, the knowledge they produce ultimately seems inconclusive.

This is because they have a limitation for not being able to look into common voters' opinion. They are generally able to measure the narratives found on Twitter, public Facebook profiles, and public WhatsApp and Telegram groups. They are not, nevertheless, able to reach private profiles on Facebook, Instagram, WhatsApp, and Telegram. So we do not have access to the conversations ordinary people are having in their daily lives.

To learn about how the average citizen has been processing the information that is shared across social media platforms, we proposed and conducted, in this study, qualitative research based on in-depth interviews, aiming to at least reach some everyday conversations ordinary people have. We used the survey to assess the impacts of perceptions and judgments on voting intention.

Based on the information presented in the quantitative stage of communication, we can conclude that the environment is an issue Brazilians considered when deciding their vote in the election we investigated, although it was not the most determining factor. Moreover, another finding is that identifying a candidate as the owner of the environmental issue may increase their chances of recording better voting intention results.

In the specific case of the latest election, Lula da Silva was the candidate that was most commonly connected to the defense of the issue and was successful in receiving the votes in this regard, partly because Bolsonaro and his attitude towards environmental preservation were rejected.

All tests conducted confirmed the postulates of the issue salience and issue ownership theories, as they demonstrated that highlighting the environmental issue as relevant and identifying a candidate as the main defender

of this issue increased voters' inclination to vote for them, even when other explanatory factors widely studied in the electoral behavior literature were controlled, including the economy, religion, and age.

The key conclusion is that the environment is a relevant issue in the electoral context. Evidence suggests that a relevant factor to understand why the environment and the environmental policy seem to have affected voting intentions (when common knowledge would suggest otherwise) is how the mainstream media and social media have set this agenda.

Quantitative and qualitative data indicate that, in the context of the 2022 elections, Brazilians valued the environment and considered the Bolsonaro administration's environmental policies unfit or insufficient. Lula da Silva's supporters tended to blame the then president for the wildfires and deforestation, while Bolsonaro's supporters tended to take responsibility for the environmental situation away from him. Data from the FGV DAPP study allow us to identify how the fields around environmentalists and the then president created a dense and substantial flow of information and data about the environment that—regardless of its veracity—made up supporters' informational repertoire, making it difficult to hold Bolsonaro directly accountable.

Lula da Silva's success when it comes to the environment does not seem to have been due to his own knowledge and reputation in terms of sustainable development, but rather to his ability to channel voter dissatisfaction with the Bolsonaro administration on this matter, welcoming sectors involved in environmental activism to support his candidacy.

Notably, there was a lot of talk on Twitter, especially among Bolsonaro's most active supporters, about his statements about his government's performance in fighting deforestation—in his response to Rede Globo's interview—, which was analyzed by InfoAmazonia and PlenaMata (2022) and presented here, in which he denied that deforestation in the Amazon was increasing and inspection guarantees were being dismantled. That was also found among some respondents, interviewed for this survey, who voted for Bolsonaro in 2018 and 2022. This is however limited in scope among voters who were adamant about voting for the former president.

The data presented by the FGV DAPP studies and the in-depth interviews show that there is room, both in the digital realm and in voters' everyday conversations, for balanced conversations, without extreme attitudes. Two Bolsonaro voters said they felt disappointed in him during his term and mention that his attitude towards the Amazon contributed to that. They assess that Bolsonaro's neglectful attitude towards the environment has led to crime. While the environment was not a central issue to these voters' political choice, the discourse regarding law and order was. A president should not turn a blind eye to crime, especially a president who was elected based on a law-and-order rhetoric: "He ruled for agribusiness, I agree with him on this aspect, but he let things get out of control. As the NGOs left, he lost control, then crime, deforestation, and catastrophes happened".

The multifaceted perspective of the environment should be emphasized. Voters may be more or less supportive of environmental preservation policies, depending on the context. The participant that was mentioned initially was in favor of expanding agriculture, as long as it was done responsibly and did not involve illegal practices. They changed their perspective when they came across evidence of environmental violations and other violations. Other participants, also from the agricultural industry, advocated for compensations through payment policies for environmental services. Recognizing that the environmental debate is intrinsically linked to the economy is essential. The average citizen globally tends to respond better to incentives than punishments, as environmental studies show. (FAIRBROTHER, 2020; RHODES, AXSEN and JACCARD, 2017). Therefore, there is great room to engage in conversation with ordinary citizens about the environmental issue.

Finally, we hope that this work can contribute to those who effectively think about and develop environmental policies.

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