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Ana Kátia de Araújo Santiago[1] | Antonio Pedroso[2]

[1] Master in Communication and Society (UFT).
Palmas – TO, Brazil.
E-mail: anakatiasantiago@hotmail.com

[2] PhD in Social Sciences (UFSCAR).
Professor at the Federal University of Tocantins.
Palmas – TO, Brazil.
E-mail: ajpedrosoneto@uol.com.br

ABSTRACT

This paper analyzed how Brazilian journalism used numerical data to report on the Amazon during four presidential elections. Its empirical object was news published in the Folha de S. Paulo and Estado de S. Paulo newspapers in 2010, 2014, 2018 and 2022. Content analysis was used to evaluate the news, its data and its sources. The results, in comparative historical series, showed that the political scenario, represented by the incumbent and the main candidates in the election, had an influence on the presence of the agenda on the Amazon and the diversified use of themes, data and sources. Despite this diversification, the data dealing with environmental issues was the most prominent and the change in relevance between one election and another demonstrated the importance of these issues in the dispute between the journalistic and political fields.

Keywords: Amazonia. Journalism. Politics. News. Data. Sources

RESUMO

Este trabalho se ocupou em analisar como o jornalismo brasileiro utilizou-se de dados numéricos para noticiar a Amazônia durante quatro pleitos presidenciais. Teve como objeto empírico as notícias publicadas nos veículos Folha de S. Paulo e Estado de S. Paulo nos anos 2010, 2014, 2018 e 2022. A análise de conteúdo foi mobilizada para avaliar as notícias, seus dados e suas fontes. Os resultados, em séries históricas comparativas, mostraram que o cenário político, representado pelo mandatário do poder e os principais candidatos do pleito, exerceu influência na presença da pauta sobre a Amazônia e no uso diversificado dos temas, dados e fontes. Apesar dessa diversificação, os dados que abordam diferentes temas ambientais foram os que apresentaram maior destaque, e a mudança de relevância entre um pleito e outro demonstrou a importância destes temas na disputa entre o campo do jornalismo e o político.

Palavras-chave: Amazônia. Jornalismo. Política. Notícia. Dados. Fontes.

INTRODUCTION

Numbers are part of science, the routine of organizations and everyday life. When they are empirically observed, they become data. Data can be produced by the government, universities, companies, non-governmental organizations (NGOs) and the press.

With digitalization, the speed of information distribution has become more intense and the transaction of data has made it more accessible to the public (Knight, 2015). The government has adjusted to this reality through the edition of the Transparency Law (Supplementary Law 131/2009), the Access to Information Law (Law 12,527/2011) and the Open Data Policy of the Federal Executive Branch (Decree 8,777/2016).

The availability of data concerning the Amazon is in the list of information published by the government. The Institute of Space Research (INPE), a local authority linked to the Ministry of Science and Technology, estimates deforestation rates in the Legal Amazon through satellite monitoring systems in the region. The federal universities, although with great autonomy, are part of the Ministry of Education and produce research on the Amazon. The Brazilian Institute of Environment (Ibama) and the Chico Mendes Institute for Biodiversity Conservation (ICMBio), *autarchies* of the Ministry of Environment, present data on inspections and other information related to their activities.

Organized civil society also produces data on the Amazon. According to Buclet (2002), non-governmental research organizations (NGOs), although some have participation of universities or public institutions in the composition of their board, raise funds independently of the government to produce scientific studies on the region.

In addition to having different sources of data on the Amazon, it is undeniable that in the last twenty years, it is a confluence phenomenon of various processes and changes, complementary and contradictory: of regional, national and global dimensions; of climatic nature, economic development, technological innovations, socio-cultural and environmental diversity, etc. In other words, the Amazon makes it possible to study the fundamental issue of research. In addition, the findings of the research allow us to expose to what extent and for what reasons the processes and changes in the Amazon have gained greater or lesser strength in the media.

Although the changes and processes in the Amazon are important and although there is a supply of data from the government and society, this does not mean that there is automatic use of this information and thematization of the processes and changes by journalism. This is precisely what this research sought to verify, guided by the idea that the uses and thematizations are due to the relationship between the field of journalism and that of politics (Bourdieu, 1997; Champagne, 1996).

In order to do this, it was necessary to observe when and how the Amazon became a topic in the news, since the interest of journalism for certain subjects passes through the newsworthiness criteria established by journalists and editors. It has that the criteria of newsworthiness are "any and all factors potentially capable of acting in the process of news production" (Silva, 2005, p. 98).

After the definition of the guidelines, journalism seeks sources that can provide information that clarify, complement or facilitate the understanding of the reported fact and also that can provide and promote the novelty of the news or its credibility. Thus, it is also necessary to observe which, how and when the data sources were used or not, incorporated by journalism when it dealt with the Amazon.

The journalism field interacts with other fields such as politics, economics and culture, and each has its own rules and struggles (Bourdieu, 1997). In the political field, during elections, disputes intensify and can reinforce struggles with other fields. These clashes are observed, felt and reported by journalism without it being possible to separate journalism as a reporter of facts from journalism as an agent of the political field, on the contrary, it performs both functions (Bourdieu, 1997; Champagne, 1996).

Then, in the political field, as in any other social field, there are two struggles: an internal one, in which the agents of the field carry out disputes among themselves in search of better spaces of domination; another external, in which the agents dispute power relations with agents of the field of journalism (Bourdieu, 1997; Champagne, 1996).

The disputes over the dominance of information place the agents of the political field, who in many cases are sources of information and holders of sources, on one side, and the agents of the journalism field, who seek exclusivity in order to guarantee scoops, on the other.

With this, it was investigated whether the elections influenced the decision making and use of data on the Amazon in news published during the presidential election years. The objective of this research was to identify the relationship between interest in the agenda and data on the Amazon according to the composition of each year's pleas, as well as the choices of the types of data used and their respective sources.

Finally, given the close and intense, tense and complementary relations between the field of journalism and the political field, it was assumed that the agenda and use of data by journalism are related to the current political scenario, with its expansion or reduction influenced by the configuration of political agents in the disputes.

The disputes between the journalistic and political fields are most visible at election time, especially in the most important federal elections. This research analyzed news about the Amazon in the presidential elections of 2010, 2014, 2018 and 2022 in two Brazilian press outlets: Folha de S. Paulo (hereafter Folha) and Estado de S. Paulo (Estadão), both online. A content analysis was carried out – news, use of data, theme of the data and sources – of 452 reports; 217 in Folha and 235 in Estadão, in the sections dealing with environment, economy and politics news.

The elections for president in Brazil take place every four years [1]. In the search clipping, the first round of voting took place on the first Sunday in October [2]. As none of the candidates achieved a majority of the valid votes, a condition for victory in a single round, there was a second round every year on the last Sunday of October with the two candidates with the best ratings[3].

The most important players in each election were: in 2010, Lula[4] was president, was not a candidate and Dilma was elected, in the dispute with Serra[5]; in 2014, Dilma was president and a candidate and was re-elected, in a dispute with Aécio[6]; in 2018, Temer was president, wasn't a

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1   Electoral procedures are governed by the Law 9.504/97 (Brasil, 1997).
2   Dates of the elections on the first round:10/03/2010, 10/05/2014, 10/07/2018 and 10/02/2022.
3   Dates of the elections on the second round: 10/31/2010, 10/26/2014, 10/28/2018 and 10/30/2022.
4   Luiz Inácio Lula da Silva, from the Workers' Party (PT). On 2010 it was the last year of his second mandate.
5   Dilma Vana Rousseff (PT) was elected with 56.05% of the valid votes in 2010, in a dispute on the second round against José Serra, of the Brazilian Social Democracy Party (PSDB). On the first round, the candidates who reached more than 10% of the valid votes were Dilma, 46.91%, José Serra, 32.61% and Marina Silva, from the Green Party (PV), 19.33%.
6   Dilma was re-elected with 51.64% of the valid votes in 2014, in a dispute on the second round against Aécio Neves (PSDB). On the first round, the candidates who reached more than 10% of the valid votes were Dilma, 41.59%, Aécio Neves, 33.55% and Marina Silva, from the Brazilian Socialist Party (PSB), 21.32%.

candidate and Bolsonaro[7] was elected, in a dispute with Haddad[8]; and, in 2022, Bolsonaro was the president, was a candidate, but Lula[9] was elected.

The press guided the Amazon in all these political scenarios. This is why this research is so important. The presentation of a historical series revealed through which subjects the Amazon was presented by the press. The exposure of these themes in these periods may have had repercussions, to a greater or lesser extent, in the national and international public debate, in the possible formation of public policy agendas, and in the exposure of the region's socio-economic and environmental problems. In addition, the verification of the sources used by the press opens a way to analyze how the production of data carried out by the society became known by the national press.

This research is divided into four sections: the first, below, presents a theoretical framework on the field of journalism and the political field; the second, the methodological path; the third, with results, analyses and discussions presents news and data on the Amazon in relation to elections, the topics to which the data referred and who were the sources of the data. The last section contains some final considerations.

THE RELATIONS BETWEEN THE FIELD OF JOURNALISM AND THE POLITICAL FIELD

This section presents some characteristics of the field of journalism, how news is produced and sources chosen, as well as the characteristics of the political field and the relationship it establishes with journalism.

Bourdieu (1997) studied the field of journalism and presented some of its characteristics: the dispute between journalists for exclusive news, the invisible censorships that act through competition for the audience, the authority in the field gained through the expansion of the market or audience and through symbolic capital, the tendency to standardize news due to the circular circulation of news, the power of consecration of agents from other fields due to the capacity of the media to produce and disseminate information and the power it exercises over the means of production.

7   Jair Messias Bolsonaro, of the Social Liberal Party (PSL), won the second round with 55.13% against Fernando Haddad (PT). On the first round, the candidates with a percentage above 10% were: Bolsonaro, 46.03%, Haddad, 29.28% and Ciro Gomes, from the Democratic Labor Party (PDT), 12.47%.
8   Michel Temer, of the Brazilian Democratic Movement (MDB), vice president, who took over the presidency in 2016 due to Dilma's impeachment.
9   Lula won the second round against Bolsonaro with 50.90%. On the first round, only two candidates had a percentage above 10%: Lula, 48.43%, and Bolsonaro, 43.20%.

Bourdieu did not elaborate on the subject of sources, but they are important agents in the field of journalism. Newspapers produce reports based on events. For Hall *et al*. (1999), the selection of newsworthy events is based on three aspects: For Hall *et al*. (1999), the selection of events that will be reported takes place by three aspects: when they are categorized into subjects, by the values-news they have and by the social context in which the news is inserted. The news values, for these authors, correspond to the level of interest that this fact can bring to the public.

According to Hall *et al*. (1999), journalists, due to the routine of their work and the search for credible sources, have institutional sources as their primary definers. The authors explain that, when some events do not yet have a consensus, they are dealt with in the relationship between the media and the institutional primary definers, and this tends to establish the interpretation that will guide future actions. Thus, during the production of news, the media tends to subordinate itself to the primary institutional definers. Thus, it can be seen that those who define reality construct the image that will be shared by society, promoting a relationship of power with it. And, to a large extent, hegemonic ideology can have its permanence ensured by the way it is portrayed by the media.

While there is recognition of the findings of Hall *et al*. (1999), there are some criticisms especially related to the emphasis on the somewhat unilateral strength of the primary definers. Sources, according to Schlesinger (1992), can act in the production of news by establishing a relationship between the press and the exercise of political and ideological power. For this author, Hall's studies did not take into account various situations present in everyday news: internal disputes over who is the official source; the attempt of these sources to lead the story from its version; the limits of access between sources, the changes that can occur in the structure of access to sources due, for example, to a change of government with a different ideology; the autonomy of media institutions to challenge the political system that holds institutional power; the maintenance of a unidirectional definition of the news and an agenda that obeys a script. In this case, the language with which the news is constructed suits consensus and debate. The result is ideological closure. Finally, there is a lack of observation of the dynamics of exclusion and competition between sources.

Finally, sources "are people, organizations, social groups or references; directly or indirectly involved in facts and events" (Schimitz, 2011, p.9). According to Rocha and Santos (2018), Hall *et al*. (1999) and Schlesinger (1992), there is a relationship of dependence between media outlets and their sources. Witsen (2018) goes a step further and says that, in terms of numerical data, some newsrooms are more dependent on official sources.

In addition to sources, another important element in the field of journalism is data, whether it comes from sources or is made available in documents. Statistical data is produced by the government, universities and organized civil society. Desrosières (2014) distinguishes between the production of data by hegemonic power and the production by those who do not hold power. In the first case, it reinforces power, in the second it serves as social criticism. It is important to reiterate that the author advocates the idea that there are no numbers that cannot be contested.

The use of numbers is of interest to both journalism and politics. According to Porter (1995), the objectification of people and objects becomes an agency of power in both ostensible and hidden ways. Political power is the prize disputed in the political field, having its strength measured, according to Bourdieu (1989), by the recognition of the group. Bourdieu (1997) points out that the government has a monopoly on legitimate information due to official sources and, for this reason, it tries "to manipulate the information or the agents in charge of transmitting it, while the press tries to obtain it and ensure exclusivity" (Bourdieu, 1997, p. 104).

The relationship between the fields of journalism and politics is not harmonious. Charaudeau (2010) states that journalists use their weapons to counter politicians and influence public debate, such as out-of-context statements and choosing unfavorable headlines and themes.

The construction of news, to some extent, is influenced by the interaction between the agents of these two fields and it is on the basis of these observations that the methodological decisions for this research were made.

METHODOLOGICAL WAY

This section discusses the empirical object, the definition of the *corpus* and how the collected reports were processed and analyzed. The empirical object was the news published during the election years on the Estadão and Folha newspaper websites. The articles were accessed and chosen using the advanced search, typing in the term "*Amazônia*". The methodology used to characterize and interpret the articles was Content Analysis (CA), according to Bardin (2016), which is, roughly speaking, a set of systematic procedures used to describe the content of messages and infer from what the results show.

For Bardin (2016), CA goes through three stages: pre-analysis, i.e. definition of the *corpus*, floating reading; exploration of the material, with referencing of the documents, coding and categorization; and finally treatment, which is enumeration, inference and interpretation. During the pre-analysis, 1,232 news items were found. Floating reading was then carried out and the rules for defining the corpus were applied: news stories written in Portuguese that had the word "Amazônia" in the title, excluding duplicates, errata, podcasts and audiovisual recordings without texts. This left 882 reports; 469 in Folha and 413 in Estadão.

The newspaper sections have different names in the media[10]. So, we looked at the similarities in content and found 302 articles in the sections dealing with the *environment*, 94 in those dealing with *politics*, 56 in those dealing with the *economy*, 53 in *sports*, 52 on *culture*, 31 on *opinion* and 30 on *science*. The three with the most reports were chosen: *environment, economy* and *politics*. In Folha, they are called *Environment, Market* and *Power*, and in Estadão*, Sustainability, Economy* and *Politics*. The final *corpus* contains 452 news items; 217 in Folha and 235 in Estadão[11].

In the material exploration phase, referencing was carried out, i.e. each report was given a code to make it easier to identify. The first categories were then created: vehicle, date, section, existence or not of numerical data.

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10   Estadão: sustainability (133), politics (63), economy (39), culture (29), science (9), opinion (17) and sport (41). Folha: environment (169), power (31), market (17), illustrated (23), science (21), opinion (14) e sport (12).
11   Data from the research of Santiago (2024).

To define the existence of numerical data, we considered numerical data to be quantitative values described in the body of the text, excluding information that only appeared in tables or graphs. The following were not considered to be data: ages, pages and price of books, audience capacity in venues and dates of events.

The data in the reports was separated into recording units. For Bardin (2016), recording units are a part of the content considered to be the basic unit that will be used for subsequent classification. In this research, the recording units are the excerpts that contained numbers.

Once the recording units had been identified, categorization was carried out, this is, grouping the recording units into categories. The categories were defined during the handling of the material by observing the central idea of the information found and grouping the similar ones together, thus creating the categories. The frequency of each category was calculated. Those that occurred in less than 5% of the articles were regrouped in a specific category called *miscellaneous subjects*[12]. Finally, 19 categories were created, organized into five groups: *environmental, economic, control of irregularities, political* and *other data* – Figure 1.

Figure 1 | Description of data categories

Source: prepared by the authors based on data Santiago (2024)

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12   According to a principle of Multiple Correspondence Analysis used here, the categories of variables must occur in at least 5% of the individuals, here subjects.

The categorization of sources followed the same procedure. The sources that provided the data were identified. The frequency of each source was counted, those with an occurrence of more than 5% had their names indicated as categories and those that didn't reach the percentage were grouped together, and the category created was given a term that best identified them, as shown in Figure 2.

Figure 2 | Description of source categories

PUBLIC INSTITUTIONS	IMAZON
Decentralized administrative entities of the government - municipalities, public companies, mixed economy companies and foundations -, except public universities and INPE..	IMAZON (Institute of Man and the Environment of the Amazon): non-governmental scientific institution that estimates deforestation rates in the Amazon.
GOVERNMENT	**MAPBIOMAS**
Representatives of powers, public bodies, laws, provisional measures, ordinances.	Mapbiomas: collaboration network between universities, technology companies and NGOs that maps the biomes of Brazil.
INPE	**ENVIRONMENTAL DATA PRODUTORS**
INPE (National Institute for Space Research): federal autarchy that estimates deforestation rates of the Legal Amazon, through satellite monitoring systems.	Several non-governmental institutions producing environmental data.
BRAZILIAN UNIVERSITIES	**PRODUCERS OF VARIOUS TYPES OF DATA**
Scientific articles produced by researchers from Brazilian universities.	Several non-governmental institutions producing data, except environmental data.
INTERNATIONAL UNIVERSITIES	**OTHER SOURCES**
Scientific articles produced by researchers from foreign universities.	Companies, newspapers, NGOs, people who provide data without a methodological study.
DATA WITHOUT SOURCES	
Source of data not disclosed in the article.	

Source: prepared by the authors based on data Santiago (2024)

Some clarifications. The existence of the category data *without source* is because in some reports the data is displayed without indicating the source. Institutes such as INPE, Imazon and Mapbiomas produce environmental information via satellite and make up exclusive categories because they are so recurrent. Next, the results will be presented along with the discussions.

AN OVERVIEW: DYNAMICS RELATED TO ELECTIONS

To begin with, in a general overview, we will present the frequency of articles and the use of data in the articles by election year. We clarify that each election year will be indicated by the word election plus the incumbent president and the winner of the election: Lula/Dilma election (2010), Dilma/Dilma election (2014), Temer/Bolsonaro election (2018) and Bolsonaro/Lula election (2022).

The 452 articles that make up the *corpus* are not evenly distributed across the elections surveyed, nor is the use of data uniform. In 2010, the Lula/Dilma election, 102 news items were found (22.57% of the

corpus) and 81.37% of them used data. In 2014, the Dilma/Dilma election, there were 62 reports (13.72% of the *corpus*), of which 91.94% used data. In 2018, the Temer/Bolsonaro election, only 36 news items were found (7.96% of the *corpus*), of which 88.89% used data. Finally, during 2022, the Bolsonaro/Lula election, there were 252 reports (55.75% of the *corpus*), of which 76.89% used data.

Taking the Lula/Dilma election as the starting point, there was a reduction in interest in the Amazon in the following election, Dilma/Dilma, although the issue was still relevant. The lack of interest was greater in the Temer/Bolsonaro election, which had the lowest volume of reports. In the Bolsonaro/ Lula election, the topic was widely explored, and the volume of reports exceeded the sum of the previous elections. It can be seen that the agenda was not continuous in the media and interest in the subject changed according to the composition of the candidates in the elections.

In terms of numbers, there was no increase in the use of data from election to election and the variation in use did not follow the increase or decrease in the total volume of reports. The election with the highest percentage of reports using data was Dilma/Dilma. Although the Bolsonaro/Lula election had the highest volume of news, it had the lowest percentage of reports using data.

For the more specific analyses, graphs were constructed and will be analyzed in the following four subsections. They show the frequency of total news stories and total news stories per month and per election, the categories of data in each election and, finally, the frequency of source categories.

a.   Elections, the agenda and the data

This subsection shows the variation in the frequency of the overall total of reports and the total number of reports that used data per month and per election. The second half of the year was considered to be the electoral period because it was during this period that the election campaigns took place - in August and September for the first round and October for the second - and the polls - the first and last Sunday in October, respectively.[13]. Graph 1 shows the total number of reports in the months of each election and the number of reports that used data.

13   Anually, the Superior Electoral Court (TSE) establishes the electoral calendar. The candidate selection took place from June 10 to June 30 in 2010 and 2014, and from July 20 to August 5 in 2018 and 2022. The electoral campaign before the first round took place from August 17 to September 30, 2010. The campaign transpired from August 19 to October 2, 2014. In 2018, the timeframe extended from August 31 to October 4, but in 2022, it spanned from August 26 to September 29. The first round of the elections took place on October 10, 2010; October 5, 2014; October 7, 2018; and October 2, 2022, respectively. The second round campaign took place from October 5 to October 28 in 2010; October 11 to October 24 in 2014; October 12 to October 26 in 2018; and October 7 to October 28 in 2022. The second voting term took place on October 31, 2010; October 26, 2014; October 28, 2018; and October 30, 2022.

Graph 1 | Overall total of reports and total of reports with data, by month and by election

Source: prepared by the authors based on data Santiago (2024)

The distribution of the total number of reports was not uniform across the elections. In the Lula/Dilma election, it began in January with 1.96%, rose in February (4.90%) and March (12.75%), oscillated between reduction, increase and reduction in April (6.86%), May (12.75%) and June (6. 86%), rose in July (10.78%) without reaching the levels of the first half of the year, 86%), rose in July (10.78%) without reaching the levels of the first semester, had a slight decline in August (9.80%) which lasted until September (6.86%), rose in October (10.78%) and fell in November (9.8%) and December (5.88%). Although the highest percentage of reports occurred in the first half of the year, in the months of March and May, in the second half of the year there was an influx of reports around the election period, with a drop between the first round (August and September) and an increase in the second round (October).

In the Dilma/Dilma election, the issue began at 3.51% in January, increased in February (8.06%), by a higher percentage than in the previous election, continued to rise in March (10.53%), and made the same oscillation as in the previous election in April (3.51%), May (12.75%) and June (6.86%). However, the drop also extended to July (3.23%). In the second half of the year, during the election period, the tariff went up in August (6.45%), September (9.68%), October (14.04%), peaked in November (24.19%) and fell in December (6.45%). The configuration in the Dilma/Dilma election differs from the previous election in that it is more concentrated in the electoral period, with November as the focal point, when the election results are in.

Observations of the Temer/Bolsonaro election showed that January accounted for 5.56% of the reports, unlike the other elections. There was a drop in February (2.78%), then a rise in March (5.56%) and April (8.33%). The period of oscillation between reduction, increase and reduction also differs from the other pleadings, as in this one, the fall occurred in May (2.78%), the increase in June (5.56%) and the fall in July (2.78%). The biggest difference is in the increase in August (22.22%), which for this election was the highest percentage of reports. In previous elections, the month of August was either in decline or the percentage difference was not as pronounced. In addition, there were no reports in September during the first round. Reports returned to the newspapers in the following months in an upward trend: October (13.89%), November (13.89%) and December (16.67%). The distribution of reports in the Temer/Bolsonaro election was atypical, being directed mainly towards the election period, with a focus on the month before the first round, August, and an increase during and after the second round (October to December). In the other elections, the month of December represented low interest, while the agenda was still high.

In the Bolsonaro/Lula election, the agenda began with 2.38% in January, repeated the trend of the first two elections, increasing in February (7.73%), but falling in March (7.54%) and April (4.76%). It ended the first semester on the rise in May (5.16%) and June (17.06%), with June having the highest percentage of reports. It fell sharply in July (9.13%). With the elections approaching, it rose in August (11.9%) and September (14.95%). In the month of the second round, unlike all the other elections, there was a reduction in October (6.75%). The oscillation between growth and reduction occurred in November (13.10%) and December (3.61%), repeating the movement that occurred in the Dilma/ Dilma election. In short, the electoral period influenced the frequency of the agenda on the Amazon in the Bolsonaro/Lula election, especially in the first round.

It was noted that the months with the highest percentage of reports were not aligned with the election period in the Lula/Dilma and Bolsonaro/Lula elections. During the Dilma/Dilma election, it took place immediately after the second round vote, in November. During the Temer/Bolsonaro election, it took place in the month of the pre-campaign, August. The electoral period – between August and December – of each election, in summary, concentrated the following percentages of total reports: 43.12%, 60.81%, 66.67% and 50.31%. In this way, it was understood that the configuration of the

election and the way it unfolded drove the choice of agenda in the last three elections, differentiating only the months in which it was most relevant.

With regard to the reports that used data, the dynamics over the months also differed. In the Lula/Dilma election, it started at 2.41% in January and continued to increase in February (6.02%) and March (10.84%). The movement of reduction, increase and reduction that occurred in April (7.23%), March (13.15%) and June (4.82%) positioned March as the month that most appropriated data to talk about the Amazon. In the second half of the year, there was a rise in July (10.84%) and a fall in the electoral months of August (9.64%), September (8.43%) and October (8.43%). Data use increased in November (12.05%), when the election results were in. This increase did not continue in December (6.02%). In short, the search for data to talk about the Amazon in the Lula/Dilma election was outside the electoral period.

In the Dilma/Dilma election, the percentage of reports using data began in January with 3.51%, and rose in February (8.77%) and March (10.53%). As in the previous election, it fell in April (3.51%), rose in May (7.02%) and fell in June (1.75%). Although there was an increase in May, it was not as significant as in the Lula/Dilma election. Another addition is that, unlike in the previous election, the search for data remained at the same level in July (1.75%) as in June. In the previous election, this month saw a rise. The months concentrating the election period saw successive increases in the search for data, starting in August (7.02%), passing through September (10.53%), October (14.04%) and reaching its peak in November (26.32%), the month with the highest percentage of data during the entire election. The reduction in December (5.26%) was abrupt. It can be concluded that in the Dilma/Dilma election there was a direct relationship between the search for data and the election period.

The use of data in the Temer/Bolsonaro election started at 6.25% in January and, unlike the other elections, fell in February (3.13%), rose in March (6.25%) and maintained this percentage in April (6.25%). In the following three months, it fluctuated between falling, rising and falling: May (3.13%), June (6.25%) and July (3.13%). An exponential increase occurred in August (25.00%), which sets this month apart from all the previous ones. There were no reports in September. With the resumption of the agenda in the second round, the use of data also resumed. In October, it resurfaced with 12.5%, continued to grow in November (15.63%) and returned to its October level in December (12.5%). Finally,

during the election period, newspapers searched for more data than in the first half of the year. There was a one-off movement to use data in August and a constant, high level from October to December.

In the Bolsonaro/Lula election, the percentage of reports that used data started at 2.06% in January, repeated the dynamics of the first two elections, with an increase in February (7.73%) and March (8.76%) and a reduction in April (5.15%). It then moved in the same way as in the Temer/Bolsonaro election, falling in May (5.67%) and rising in June (10.82%). The second half of the year began with a fall in July (8.76%), repeating the movement of the two previous elections. It increased in August (11.86%) and September (14.95%), showing a connection with the first round. The search for data decreased in October (7.22%), increased in November (13.40%) and fell in December (3.61%). It can be concluded that in this election, the press concentrated its use of data during the electoral period, especially during the first round and after the elections.

In short, the first election did not follow the calendar of the electoral period, while the others did. The relationship with politics can be seen by looking at the whole year, from the beginning without many disputes, controversies and tensions to the end, with a lot of data in the campaigns, at voting times and immediately after the votes.

b.   The choice of data: revelations about the elections

Observing the categories of data over time made it possible to see how information on the environment, the economy, control of irregularities, politics and other data moved through the ballots. The data categories, that is, the themes to which the data refers, are shown in this subsection. Graph 2 shows how these categories were explored by the newspapers in each election.

Graph 2 | Frequency of data categories ballot by ballot
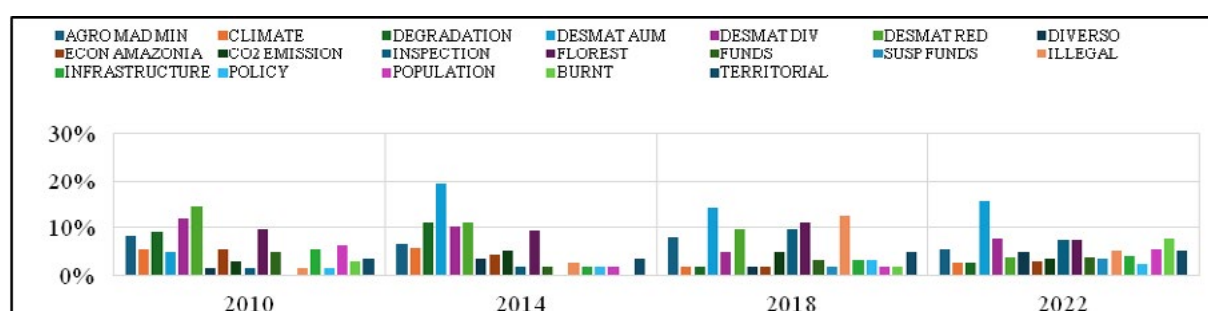
Source: prepared by the authors based on data Santiago (2024)

Each year presented different configurations. We therefore decided to analyze the categories in the third quartile, in terms of percentage of recurrence, as they represent the majority of the categories observed in each election.

During the Lula/Dilma election, the third quartile corresponded to the frequency percentage starting at 8.28%. The main categories of data used were: *reduced deforestation* (14.48%), *miscellaneous deforestation* (11.72%), *forest* (9.66%), *degradation* (8.97%) and *agribusiness-wood-mining* (8.28%), corresponding to 53.11% of the total data.

Some specific environmental topics dominated the news. The most relevant category was *the reduction in deforestation*, that is, information that showed the percentage indicating a reduction in deforestation or provided comparisons between deforestation data, and in this comparison the reduction in the deforested area was signaled. In addition to the reduction, other issues related to deforestation were highlighted and categorized as *miscellaneous deforestation*. This is a residual category that includes, for example, information about deforestation in which it is not explicit whether there has been an increase or decrease in the deforested area, there was only a figure about the current situation or a comparison of the size of the deforested area with some known location, such as a soccer field, the size of a municipality, etc. Other environmental information was highlighted. The data on the *forest* provided information on species of fauna and flora, its rivers and reserves. Although the deforestation figures presented were reductions, there was information on forest *degradation*, that is, when a given forest area has lost its capacity to regenerate. The only category outside the environmental group present in the data hierarchy was *agribusiness-wood-mining*, which presented the economic figures for these enterprises. It is important to note that these figures only included those that did not explicitly indicate the result of illegal business, such as timber smuggling, planting in reserve areas, etc.

Throughout the Dilma/Dilma election, the third quartile corresponded to the percentage of frequency starting at 9.24%. The main data category was the *increase in deforestation* (19.33%), which was not in the previous hierarchy, but entered and jumped to first place significantly. *The reduced deforestation* category (10.92%) decreased its percentage of recurrence and fell to second place.

Degradation (10.92%) saw a slight increase in occurrence and moved up to third place. In the previous poll, it was in fourth place. *Miscellaneous deforestation* (10.08%) maintained its percentage, but fell to fourth place. *Forest* (9.24%) kept practically the same percentage as before, but fell to fifth place. Finally, *miscellaneous deforestation* and *agribusiness-wood-mining* lost ground and are no longer among the 60.49% most frequent data categories.

Information about the environment dominated the news again, but the approach changed. Now, the most relevant data was an *increase in deforestation*, that is, information that showed the percentage indicating an increase in deforestation or comparisons between deforestation data, and in this comparison the increase in the deforested area was signaled. To a lesser extent, there was still a *reduction in deforestation*. Information on increased deforestation is negative for the government, as is information on degradation. Among the three most common categories, two are negative for the government: *increased deforestation* and *degradation*. It was observed that deforestation concentrated the agenda in its three aspects: increase, reduction and various related issues. Forest biodiversity remained relevant. As a result, environmental information indicating environmental problems was more prominent in this election.

Over the course of the Temer/Bolsonaro election, the third quartile corresponded to the frequency percentage starting at 9.52%. The hierarchy of the main data categories (57.14%) changed again. The *increase in deforestation* (14.29%) decreased in percentage, but retained the top position. The *illegal* category (12.70%) appeared for the first time in the hierarchy and took second place. *Forest* (11.11%) increased its percentage and rose from fourth to third place. Another category that made its debut in the hierarchy was *inspection* (9.52%), in fourth place. *Reducing deforestation* (9.52%) decreased in percentage and fell to fifth place. Finally, *degradation* and *other deforestation* decreased in percentage and dropped out of the list of most-addressed issues (57.14%).

Two groups of categories related to the environment and the control of irregularities dominated the news: the environment (*increased deforestation, forest and reduced deforestation*) and the control of irregularities (*illegal and inspection*). *Increased deforestation* is still the main topic in the news. What was new in this election was the exponential increase in data on *illegal* activities in the region. This data shows, for example, over-invoicing, the sale of illegally cut timber, agribusiness production,

mining or mining in prohibited areas or carried out without authorization. Forest biodiversity continued to be relevant. The data on *inspection* corresponds to the environmental operations carried out by the environmental control agencies, whether Ibama or ICMbio, presented through seizures, fines or the number of operations. *Reducing deforestation* has reduced its participation in the news with each election, although it is still on the list of most relevant issues.

During the Bolsonaro/Lula election, the third quartile corresponded to a frequency of 7.51%. There was another change in the hierarchy of the main themes in the data (46.26%). *Increased deforestation* (15.74%) increased its percentage and maintained its first position. For the third time in a row, a prominent position. *Miscellaneous deforestation* (7.75%) returned to the top of the ranking and is now in second place. *Burning* (7.75%) entered the hierarchy for the first time, in third place. *Enforcement* (7.51%) decreased its percentage, but retained fourth place. Forestry (7.51%) reduced its percentage and fell from third to fifth place. Finally, *illegal* and *reduced deforestation* fell out of the top ranking (46.26%).

Increased deforestation had almost double the number of recurrences compared to the category that occupied second place, a situation similar to what happened in the Dilma/Dilma election, in which the gap between first and second was approximately nine percentage points. Information on deforestation without comparisons returned. The figures on fires stand out. This is the first time they have been in the hierarchy since the first election. Information on inspection operations and forest diversity is still present, but on a smaller scale.

In short, environmental issues were the most relevant in the news. During the Lula/Dilma elections, the reduction in deforestation was more frequent and the presence of figures that reflected on the economy in the hierarchy of data stood out. This was not the case in the other elections. From the Dilma/Dilma election onwards, the increase in deforestation received the most attention and economic data lost relevance. The diversity of the forest was the only theme that was present in all the elections. It was noted that in the Dilma/Dilma and Bolsonaro/Lula elections, the increase in deforestation featured more prominently in the news. In the Temer/Bolsonaro election, two new themes emerged: inspection and illegalities. In the Bolsonaro/Lula election, unlike the others, there is no information on the reduction in deforestation in the highlighted clipping, but it is the first time that

fires have appeared. In all the elections, the only categories relating to the environment that did not have the percentage of occurrence to be in the quartiles analyzed were CO2 emissions, which dealt with carbon emissions figures, and climate, which presented figures on climate change, rainfall events, drought and temperature rises.

   c.   Journalism and politics: the dynamics of sources

   Observing who the data to the press made it possible to verify the dependence on government sources and the participation of data from society. This subsection examines the categories of data sources, that is, who revealed the data to the press. Graph 3 shows who provided the press with data and how much.

Graph 3 | Frequency of data source categories, ballot by ballot
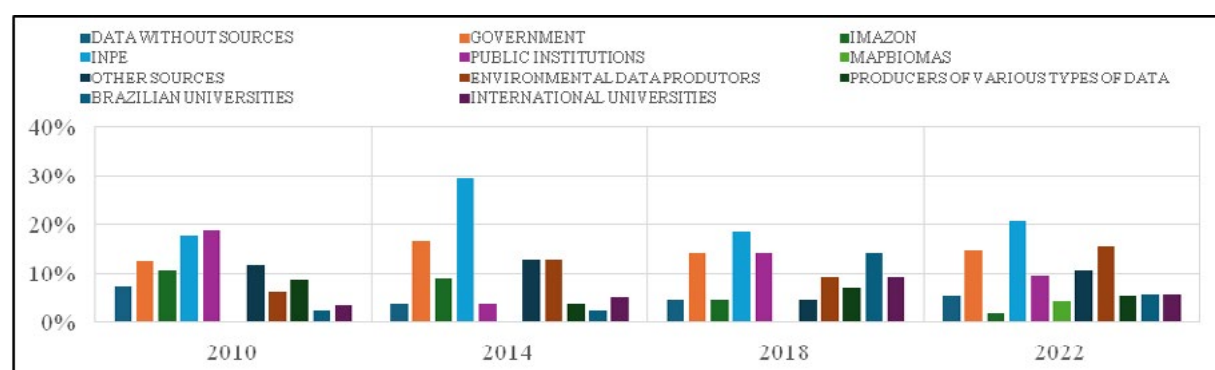
Source: prepared by the authors based on data Santiago (2024)

   Each election had different configurations in terms of the frequency of data source categories. It was therefore decided to analyze the hierarchy of the main sources, i.e. the sources with a frequency percentage from the third quartile onwards, as they represent the categories with the highest frequency of sources observed in each election.

   During the Lula/Dilma election, the third quartile was 12.50%. The hierarchy of the main sources (49.11%) was as follows: *public institutions* (18.75%), *INPE* (17.86%) and the *government* (12.50%). This showed a privileging of government agents, because the *public institutions* category represented the data provided by the government's indirect administration; *INPE* was the Space Research Institute, a federal autarchy that provides information on satellite mapping of the region, and the *government* category was the information passed on by ministers, public servants.

Throughout the Dilma/Dilma election, the third quartile corresponded to a frequency of 12.85%. The hierarchy of the main sources (71.8%) has changed. Now the *INPE* category (29.49%) has taken first place, the *government* (12.50%) has increased its percentage and moved from third to second. *Environmental data producers* (12.82%) and *other sources* (12.82%) appeared in the hierarchy. With this new panorama, the *public institutions* category dropped out of the hierarchy. There were two distinct situations. Government agents continued to be the main suppliers of data, with the *INPE* and *government* categories as spokespeople, accounting for 41.99%. And agents from society emerged, with the categories *of environmental data producers*, which are non-governmental institutions that produce data on the environment, as well as *other sources*, which is a residual group that includes companies, newspapers, NGOs or people who provide data without a methodological study. Sometimes these are figures from their financial or accounting reports. These two categories, which represent sources outside the government, accounted for 24.64% of the hierarchy

During the Temer/Bolsonaro election, the third quartile had a frequency of 13.95% and the hierarchy of the main sources (60.45%). Although it fell in percentage, the *INPE* category (18.6%) remained the main source. *Government* (13.95%) also fell, but remained in position. The *public institutions* category (13.95%) returned and the *Brazilian universities* category (13.95%) emerged for the first time. The categories *other sources* and *producers of environmental* data lost ground and dropped out of the hierarchy. Government agents took the lead with 46.5%, represented by the *INPE*, *government* and *public institutions categories*. The rise of the *Brazilian universities* category showed the dissemination of work carried out by researchers from public or private Brazilian universities.

During the Bolsonaro/Lula election, the third quartile had a frequency of 14.67%. The hierarchy of the main sources (50.90%) showed that the *INPE* category (20.66%) increased its percentage and was consolidated in first place, *environmental data producers* (15.57%) returned and took second place and the *government* category (14.67%), although it increased its percentage, fell to third place in the hierarchy. The Bolsonaro/Lula election was the only one in which all source categories were present. Although government agents accounted for 35.33%, the importance given to the *INPE* category defined it this year as the main authority for satellite monitoring data. The *environmental data producers* category returned in the Bolsonaro/Lula election with a higher percentage than in

the Dilma/Dilma election, when it was present in the hierarchy of the main sources.

When observing the dynamics of the sources, it became clear that journalism had a predilection for official sources in all the elections. During the Lula/Dilma election, the entire hierarchy was made up of government agents. Although the press still favored government agents, in the other elections it relied more heavily on sources outside the government. Throughout the Dilma/Dilma election, it had both agents who produced environmental data using established methodologies and agents who produced or merely reported data on different subjects that did not come from a study on a particular subject. During the Temer/Bolsonaro election, the universities and during the Bolsonaro/Lula election, the producers of environmental data.

CONCLUSIONS

The relationship between the field of journalism and the political field is permeated by disputes that are explicit or implicit in editorial decisions on news production. This research looked at the reports in Estadão and Folha to see how and when the Amazon became a topic in the news and the data used and its sources during the presidential elections in 2010, 2014, 2018 and 2022 to understand how the field of journalism and the political field established their disputes using the Amazon as a reference theme.

 Taking the Amazon as a point of observation in this dispute revealed how this region was presented to society in the different elections, the movement of themes that emerged and lost relevance in the news and the processes of change in the suppliers of information for the composition of the news.

The research problem asked about the possible influence of electoral contests on newspaper decisions to focus on and use data about the Amazon. The objective was to identify the relationship between interest in the agenda and data on the Amazon according to the composition of the elections and the choice of the types of data used and their respective sources. The hypothesis was that the agenda and the use of data are related to the current political scenario of each year, with their increase or decrease influenced by the president in office or the composition of the election.

In order to answer this question, we sought to understand the relationship and disputes between the fields of journalism and politics (Bourdieu, 1997; Champagne, 1996) and the selection of news, especially the events favored in the social context in which they were inserted and the choice of sources (Hall *et al.*, 1999; Shlesinger, 1992).

Empirical observation made it possible to follow the events chosen to be reported, i.e. those that had news values (Hall *et al.,* 1999), and passed the newsworthiness criteria defined by journalists and editors. The *corpus* included 452 reports from the environmental, economic and political sections of the Folha and Estadão newspapers during the elections in which the incumbent presidents were: Lula (2010), Dilma (2014), Temer (2018) and Bolsonaro (2022). And the respective winners of the electoral processes: Dilma (2010), Dilma (2014), Bolsonaro (2018) and Lula (2022).

Bardin's (2016) Content Analysis methodology was used to analyze, explore and process the news and revealed the dynamics of the elections in the choice of agendas, the search for data, the use of data and the choice of sources.

It emerged from the results that each election behaved differently and that the Amazon issue is not a subject whose news value exists on its own. There is a component of the political dispute that makes it relevant in the news, and the head of the political power and the configuration of the election influenced the amount of news in the years surveyed, the presence or absence of the agenda around the first and second elections and the greater or lesser frequency in the use of data.

The environment, economy, control of irregularities, politicians and other data were the groups that guided the investigation of the data categories used. The choice of data revealed the events in each election and the relationship between the political field and journalism. The most relevant data in the news was environmental information, especially on deforestation, degradation, fires and forests, with little space for topics such as carbon emissions and climate change. The topic of deforestation was explored positively when there was a reduction in deforested areas, and negatively when there was an increase. Only in the first election was the positive news about deforestation the most relevant piece of information; from the second onwards, the increase in deforestation grew exponentially.

Information on the economy and the control of irregularities was inconstant. There was also little mention of the figures relating to the electoral contest itself.

The investigation into data providers showed the newspapers' dependence on government sources. These are the most widely used sources. However, there is a growing quest to diversify these sources. Society is now being called upon by newspapers, especially among groups that produce studies on environmental data.

The relevance of this research was confirmed in the historical exposition of how the agenda on the Amazon was established in the existing disputes between the field of journalism and the political field, demonstrating how the data, its themes and its sources moved in each election, and highlighting that despite the diversity of data, the data that addresses different environmental themes was the most prominent, and the change in relevance between one election and another demonstrated the importance of this information in the use of the Amazon to establish the dispute between the field of journalism and the political field.

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