

# Recommending instead of taking down: YouTube hyperpartisan content promotion amid the Brazilian general elections

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## Abstract

YouTube released a global commitment to reduce the spread of problematic content by actively recommending “trusted” news sources on their platform but did not disclose the criteria used to classify the reputation of channels and the list of trusted news sources favored by the company. We aim to understand the patterns of recommendation by YouTube's algorithm and identify what the platform classifies as “reliable informative sources.” In our experiment, we performed 205 tests on YouTube's recommendation system, simulating the behavior of new Brazilian users with no historical data on the platform looking for reliable news throughout the elections. We documented the Brazilian media groups that were suggested on the homepage, further analyzing the presence, position and content of Jovem Pan videos, Brazil's flagship conservative media group. We identified that, far from reigning in extremist content, YouTube systematically prioritized Jovem Pan and did not actively take down toxic Jovem Pan content. Our findings indicate that YouTube magnified the imbalance between candidates' portrayals, exposing the regulatory asymmetry between broadcast media and online platforms in the country. In spite of the opaque commercial agreements and business strategies, the platform's recommendation decisions may have an “advertising effect” of sponsorship and endorsement on users.

## KEYWORDS

algorithmic filtering, Brazil, content moderation, recommendation, YouTube

## INTRODUCTION

Throughout the Brazilian 2022 high-stakes elections, in which the incumbent Jair Bolsonaro unsuccessfully ran for reelection, toxic and contentious content created a hostile atmosphere and heightened concern over the impact of such malicious strategies. In an attempt to contain the spiral of disinformation, the Superior Electoral Court (Tribunal Superior Eleitoral [TSE]), made important changes to the electoral campaign legislation to diminish digital platforms' power of content arbitration. The TSE signed a formal agreement with digital platforms, and specifically with Google, which joined the Permanent Programme to Combat Disinformation within the Electoral Justice. One of the ongoing actions in this agreement to which Google committed was the "dissemination of reliable information" and "identification and containment of cases and practices of disinformation" (Tribunal Superior Eleitoral, 2022). As an initiative to fulfill the agreement with the Electoral Court, YouTube launched the governance approach #AntesDoSeuPlay, a local rebranding of the global strategy called "The Four Rs": Remove, Raise, Reward, and Reduce. YouTube publicly declared its commitment to mitigate the spread of disinformation by (1) removing videos that violate the platform's Rules and Policies against harmful content; (2) reducing the propagation of "borderline content"; (3) recommending "trustworthy content"; and (4) rewarding the creators of professional and quality content (YouTube, 2022).

According to Neil Mohan, a YouTube executive, video recommendations have been responsible for 70% of the platform's watch time (Solsman, 2018), making suggestions central for content discovery and user retention. YouTube claims its homepage recommendations are based on reputation with only reliable and acknowledged news sources being suggested (YouTube Team, 2019). Since the company does not disclose the criteria used to classify the reputation of informative and news sources, there is a pressing need to identify and evaluate news channels, whose visibility is accentuated by YouTube.

Against this backdrop, our study aims to: (1) understand the patterns of recommendation by YouTube's algorithm during the Brazilian elections, identify what the platform classifies as "reliable informative sources" (YouTube Team, 2019) and the degree of diversity of the recommendations, considering the platform's commitment to promoting new and diverse voices (Wojcicki, 2021); (2) measure the extent which Jovem Pan channels received highlighted visibility by YouTube's recommendation algorithm during the Brazilian elections; and (3) analyze the programmatic and architectural changes made in YouTube's recommendation system in response to media scandals, judicial decisions and social pressure.

In our experiment, we performed 205 tests on YouTube's recommendation system, simulating the behavior of new Brazilian users with no historical data on the platform looking for reliable news throughout the elections. We found that Jovem Pan was systematically advantaged among recommended news sources, to the detriment of other sources of information. We also demonstrated that the enforcement of the platform's content moderation policies ended up benefitting Jovem Pan. Deliberately or not, YouTube did not effectively enforce its own terms of use in Brazil during the elections, ignoring the Electoral Justice decisions on Jovem Pan content takedowns.

## BACKGROUND AND THEORETICAL FRAMING

Whereas the conceptual discussion regarding the ethical, legal, and design implications of algorithmic bias has flourished in recent decades, only a limited number of studies have empirically examined recommender systems from a critical framework (Kordzadeh & Ghasemaghaei, 2022), particularly regarding the financial and economic interests and

motives behind their technology-driven biases and decisions. Two main bodies of academic research have paid sustained attention to algorithmic recommendation: (1) a solution-oriented and technical pursuit of evidence on the functioning of recommender systems in the field of computer science; and (2) critical algorithm and internet studies that rarely focus on how recommender systems operate (Centre for Data Ethics and Innovation, 2020). Regardless of their weaknesses and strengths, both streams of research have provided insights and warnings about biases, discrimination and (un)fairness (Mann & Matzner, 2019; Žliobaitė, 2017), as well as opacity of algorithmic curation, system auditability and the observability of these systems (Mittelstadt, 2016; Shin & Park, 2019).

The selection and exclusion of content, as well as the criteria used to determine relevance have been mainly based on five different recommendation methods: (1) collaborative filtering, based on user's past behavior as well as similar decisions made by other users; (2) content-based filtering, based on discrete characteristics to recommend additional items with similar properties, such as genre, attributes, categories and/or content classification; (3) reputation scoring, which identifies users or specialists who have greater credibility, status or rating in a user community and uses the behavior of these individuals to substantiate the recommendations; (4) popularity scoring, which identifies the most popular items (most used or searched in a given community of interest), to recommend; and (5) hybrid approaches that combine the other methods and are most used by public relevance algorithms (Jannach et al., 2011; Santini, 2020; Schafer et al., 2007; Shah et al., 2017).

Recommendations on social media platforms are not restricted to “watch next” suggestions and news feed content selection, but rather algorithmic intermediations include querying search engines, filtering spam, or reducing the reach of certain content or users. At the core of algorithmic governance sits functions such as social sorting, market segmentation, personalization, recommendations, and the management of traffic flows (Sandvig et al., 2014). When algorithmic sorting determines content amplification and visibility, code operations have the power to shape users' shared perceptions of culture, news, and politics (Beer, 2009). Algorithmic curation thus involves the production and limitation of the conditions under which certain content circulates, if and how its visibility is amplified, reduced, or completely shut down (Gillespie, 2022). Significantly, some platforms' digital architectures rely more heavily on algorithmic filtering than others (Bossetta, 2018), as is the case with YouTube (Goodrow, 2021; Ricks & McCrosky, 2022; Rieder et al., 2018).

Since recommendations can direct users to videos they would not normally have selected (Alfano et al., 2021), recent studies have investigated to what extent YouTube might work as a “radicalizing instrument” (Ledwich et al., 2022; see also Tufekci, 2018; Yesilada & Lewandowsky, 2022). Thus understanding the amplification of content is key to investigating information consumption on the platform. Previous research has shown that YouTube's recommender system facilitates extremist content (O'Callaghan et al., 2015; Yesilada & Lewandowsky, 2022), by inducing the average user to take deeper and deeper dives into radical and problematic content chains (Matamoros-Fernández, 2017).

Tufekci (2018) highlights the financial reasons for these recommendations: since YouTube's revenue depends on the ads served on watched videos, “incendiary content” is recommended as it catches users' attention more easily. YouTube's content monetization and possible demonetization are based on an ad-revenue-sharing arrangement with video creators funded through programmatic advertising (Caplan & Gillespie, 2020). YouTube has claimed a commitment to demonetizing conspiracy theory-related videos, but some creators have managed to stay in the platform's system and still receive ad revenue (Zeng et al., 2022). Despite their ability to shape the overall online environment and to clearly benefit economically from this socio-technological arrangement, tech companies are commonly seen as neutral and open, instead of private and profit-driven, building upon the lack of transparency and regulation (Gillespie, 2018).

With the growth of public concern regarding toxic content, hate speech, and disinformation, YouTube has been questioned about its role and power regarding content suggestion, removal, and monetization (Caplan & Gillespie, 2020; Ma & Kou, 2021; Tarvin & Stanfill, 2022). YouTube adopts a tiered governance strategy “offering different users different sets of rules, different material resources and opportunities, and different procedural protections” (Caplan & Gillespie, 2020, p. 2). Channels are met with selective enforcement of the rules, uneven partnerships, and sudden losses of revenue. As Caplan and Gillespie (2020) have stated, the variance of standards on how different users are held demonstrates YouTube prioritizes the interests of advertisers over users and creators.

The large scale-use of machine learning and data mining algorithms in commercial practice enables recommender systems to substantially influence our experiences as audiences, consumers, and producers (Ricci et al., 2015), thus selecting what is relevant and making political and economic choices that are obscured from us (Gillespie, 2014). Hence, content recommendation and moderation should be understood as part of a broader platform governance strategy that pairs mechanisms of incentive and compensation with detection and punishment operations (Caplan & Gillespie, 2020). Ultimately, more evidence is needed on how YouTube identifies users' weaknesses and leverages those insights on personalized recommendations, reducing users' autonomy and potentially directing them to problematic and toxic content.

## JOVEM PAN: A BRAZILIAN MIX OF FOX NEWS AND ONE AMERICA NEWS NETWORK

A Brazilian family-run media group with an eight-decade-long history, Jovem Pan was originally a music radio station before reinventing itself as the country's flagship conservative media group. This transition began during left-leaning Dilma Rousseff's presidency (2011–2016), when Jovem Pan hired well-known right-wing journalists, as the group felt they could capitalize upon the growing antileft sentiment to maintain relevance (Duailibi, 2015). Jovem Pan radicalized its programming further still with the rise of far-right president Jair Bolsonaro (2019–2023), whom it openly supported, especially during the COVID-19 pandemic (Costa, 2022a). Throughout its radicalization, Jovem Pan lent its name to far-right misinformation: journalists and fact-checkers accused the company of backing false, unverified, and distorted claims about COVID vaccines (Menezes, 2021; Prata & Monnerat, 2021) and environmental issues in Brazil (Filho, 2021), for example. Even though the Brazilian media ecosystem, discussed in greater detail in Appendix S1, historically leans to the right on the political spectrum, Jovem Pan's open activism and radicalism make it an outlier in this landscape.

During this rebranding, YouTube played a central role in Jovem Pan's strategies. Overall, there are more than 40 Jovem Pan channels registered on the platform. From early on, their channels on the platform streamed journalists and commentators in their studios, broadcasting the same programming on and off it, a practice that would soon be adopted by its regional affiliates. Jovem Pan News became a cable TV channel at the end of 2021, reproducing the same programming as on its YouTube and radio counterparts. With the help of Bolsonaro's administration, which openly committed to granting the group a public TV concession, Jovem Pan also aimed to establish itself as a broadcast TV channel, but these plans were delayed due to legal issues (Costa, 2022a).

Jovem Pan is a particularly relevant actor in the Brazilian YouTube ecosystem, as Google News Initiative publicly supported the group. Google presents Jovem Pan as a “success case,” following dedicated training (Google News Initiative, 2020). News reports mention that they dedicated an initial US\$300,000 in financing, after drawing the attention of

high-ranking Google executives for being “Brazil's biggest information source on YouTube” (Costa, 2022a). Moreover, YouTube also refers to Jovem Pan on their website as a reliable information source along with CNN, Fox News, India Today, and The Guardian (YouTube Team, 2019). Despite its growing online base, Jovem Pan's audience is largely irrelevant outside the internet. Kantar IBOPE Media 2022<sup>1</sup> data shows that the Jovem Pan News TV channel has a meager audience on cable TV, and that their radio stations still lag behind other traditional and regional radio stations.

During his period in office, Bolsonaro promoted weekly live streams on his social media profiles to discuss current affairs, which Jovem Pan simultaneously broadcasted in its programs, being the only media group in Brazil to do so. Throughout these live feeds, Bolsonaro recurrently spread disinformation about the COVID-19 pandemic (UOL, 2021) and the Brazilian electoral system (Soares, 2021). Even when YouTube took down live streams from Bolsonaro's channel, they could still be watched on the platform's Jovem Pan channels (Costa, 2022a).

The 2022 presidential elections reflected the country's polarization and the radicalized far-right agenda, leading to a toxic and contentious political atmosphere in which Jovem Pan occupied the spotlight. Bolsonaro unsuccessfully ran for reelection, losing to former left-wing president Luis Inácio Lula da Silva by a tight margin. In an attempt to contain the spiral of toxic and misleading content during the run-up to the election, TSE ruled that spreading disinformation about the electoral process would now be a crime in Brazil (Tribunal Superior Eleitoral, 2021). However, the campaign, staged between mid-August and October 2022, was plagued by repeated attacks against electoral integrity and insinuations of fraud (Spigariol & Nicas, 2022), strengthened by Jovem Pan's frequent disinformation claims about the electronic voting system (Costa, 2022a). The Brazilian far-right appears to have copied Donald Trump's strategy of spreading disinformation on vote counting to undermine voter confidence in the outcome (Filho et al., 2022). In its electoral coverage, Jovem Pan cited more highly biased pro-Bolsonaro sources, leading to an uncritical presentation of these views, even when they referred to known distorted or manipulated facts (Chagas & Cruz, 2022).

Taking advantage of this scenario of polarization, Jovem Pan spares no efforts in attacking its perceived enemies. For instance, during the elections, their political commentators made offenses based on fake news toward journalists perceived as anti-Bolsonaro (UOL, 2022a) and frequently attacked ministers of the Brazilian Supreme Court regarded as left-wing activists (Soprana et al., 2022). Therefore, we characterize Jovem Pan as a hyperpartisan media group (Rae, 2020), as it openly favors extremist views at the expense of facts and mostly relies on heavily ideological attacks on political opponents. Meanwhile, they are assisted by digital platform affordances to reach bigger audiences, despite being a well-established company.

After the Brazilian far-right had lost the presidential elections in 2022, Jovem Pan announced a layoff of some of their most extreme commentators as an indication that they would not “back civil disobedience” (Seto, 2022). Soon after, in November, YouTube announced that they would demonetize all Jovem Pan channels, due to “successive violations of platform policies” (Estadão, 2022), a decision which remains in force as of August 2023. As a result, Jovem Pan removed old videos accused of containing disinformation and hate speech from their channels, in an unsuccessful attempt to regain their right to monetize on the platform, as YouTube advertising accounted for approximately 20% of their income (Costa, 2022b).

Following the January 8, 2023 riots in Brazil, which Jovem Pan's commentators openly supported or minimized as legitimate demonstrations (Aragão, 2023), the Federal Prosecution Service (Ministério Público Federal [MPF]) started an investigation on Jovem Pan for the spread of fake news during the elections (Bocchini, 2023). The MPF eventually

filed a lawsuit demanding the cancellation of Jovem Pan's radio and TV licenses based on “the broadcaster's alignment with the disinformation campaign that took place in the country over the course of 2022 until the beginning of this year” (Ministério Público Federal, 2023). As a response, the broadcaster positioned itself as a victim of an “authoritarian regime,” illegally persecuted for defending freedom of expression (Jovem Pan, 2023).

## METHODOLOGICAL APPROACH: TESTING RECOMMENDATION BIAS USING STATISTICAL DICE PROBLEM

To assess whether YouTube favored Jovem Pan on its homepage recommendations, we performed an experiment using sequential sampling (Etikan et al., 2016) to map the diversity of news sources recommended on the platform during the Brazilian 2022 election campaign. We did not analyze the content of each video, but rather identified the news sources that were being recommended on the platform. Sequential sampling is a nonprobabilistic sampling technique in which the researcher repeats an experiment in a set of heterogeneous cases, in a given time interval, until result saturation is achieved.

This technique has been used in studies of algorithms (Liu et al., 2016) and recommendation systems (Watanabe, 2001) to understand their degree of randomness and bias. In this technique, the size of the analyzed sample is not determined in advance, but in line with decisions based on data and statistics produced as the research progresses. When a mathematical pattern is found in the data and the results of the experiments begin to show redundancy, the sampling process can be stopped.

To carry out the experiment, we visited YouTube's homepage simulating a “new user” on the platform without historical data. All visits were made using Google Chrome incognito mode in conjunction with ExpressVPN, a paid Virtual Private Network service, set to simulate the navigation experience of a common and anonymous Brazilian user. A VPN application protects a user's browsing information by anonymizing their activity and geographic location, hiding the user's real IP address, and, in this case, simulating a different IP with a random geographic location within Brazil in each test (ExpressVPN, n.d.; Fray, 2016). No user was logged on to a Google account in any of the visits, nor did we use the account for watching videos, constructing search histories to avoid building a profile of preferences (Ledwich et al., 2022). We aimed to test YouTube's algorithm recommendation bias as a statistical dice problem (Pomeranz, 1984).

Our data collection was designed in a similar fashion to what Sandvig et al. (2014) propose in their algorithm audit methodological framework. We were inspired by their sock puppet audit technique, although we did not employ any automated or semi-automated steps, thoroughly relying on manual evaluation. They also suggest that their framework may apply for investigations of payola-like systems, in which a content-based platform prioritizes some content to the detriment of others based on their business interests, which is at the core of our study. Our approach differs in that we create and delete each new user, testing the algorithm randomly by formatting the device and removing any trace data.

Our experiment was divided into two distinct stages. The first stage ran from August 23 to August 30, 2022, when we made 18 visits to the YouTube homepage. During a brief pause, the preliminary results were compiled into a report (NetLab UFRJ, 2022), published in a *Folha de São Paulo*<sup>2</sup> article on September 13 (Mello, 2022). The second stage took place between September 15, and November 1, 2022, 2 days after the second round of the elections. During this stage, 187 visits were made, resulting in a total of 205 tests. On each of the visits to the YouTube homepage, we registered the first recommended news channel, documented the presence and position of Jovem Pan channels in relation to other news

channels on the homepage and analyzed the content of its recommended videos. This process and decisions regarding what we considered as “first recommended videos” are discussed in greater detail in Appendix S2.

Finally, we used the YouTube Data Tools (Rieder, 2015) Video List module to extract API metadata of the recommended Jovem Pan videos. This allowed us to check which videos were unavailable and to gather insights from takedown strategies—or the lack thereof.

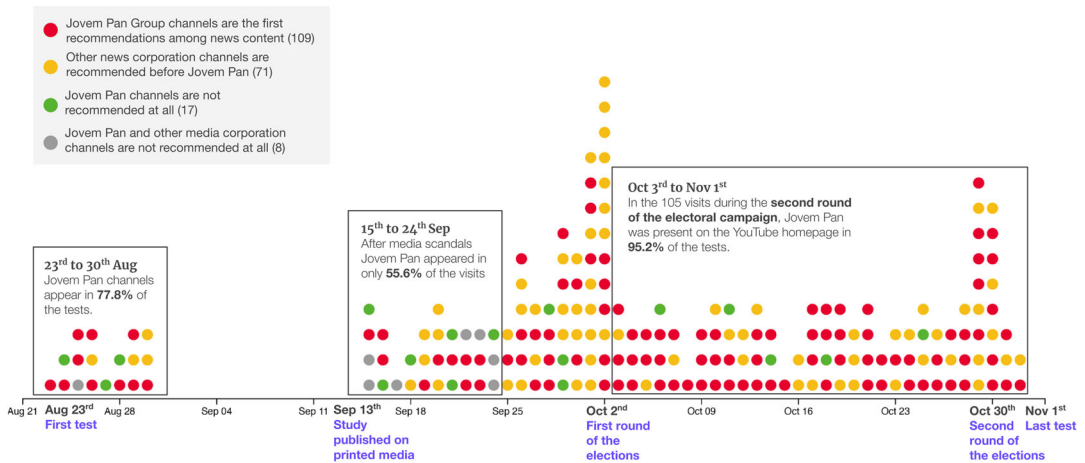
## LIMITATIONS

It is worth remarking further on what the potential of our findings for generalization may be, since we adopted a “nonpersonalized” data collection approach. The main objective of the study was to isolate “personalisation” as a variable and a recommendation factor (for experimental control) to understand the bias of the algorithm without individual data input. Our study uses the “agent-based audit” method, which has been adopted in several other studies—such as the work published by Makhortykh et al. (2022) to identify biases in Google's search engine. Agent-based auditing uses anonymous agents simulating new user browsing behavior (e.g., page scrolling) to collect information online (Ulloa et al., 2022). Unlike other auditing approaches, as revised by Bandy (2021), agent-based auditing allows for collecting data under controlled conditions (e.g., by initiating queries at the same time or modeling earlier search history) to control for search personalization and randomization (Makhortykh et al., 2022). Due to the deterministic nature of algorithmic recommendations, we selected videos from the initial account seedings because the results presented to new users hold outsized importance in swaying them to view specific political content. It should also be considered that YouTube changed its homepage in 2023 and now allows users to disable recommendations based on their viewing history (Roth, 2023), indicating that “nonpersonalized” recommendations can be a choice for many users. It is also worth noting that we did not set the VPN application to any predetermined geographic locations within Brazil, as we did not aim to analyze regional specificities or disparities in terms of political support or media distribution.

## RESULTS: OPAQUE MODERATION AND EVADING TAKEDOWNS

Across our 205 visits to evaluate news diversity of content recommendation on YouTube's homepage during the Brazilian elections, we found that the platform prioritized Jovem Pan to the detriment of other news and information sources. The group's channels were present in 87.8% of the visits (180). During this time, we gathered information from 525 unique videos recommended 962 times—an average of 4.7 Jovem Pan videos recommended per visit. The recommended videos were uploaded by 12 different official Jovem Pan channels. Overall, these 12 channels have an audience of more than 23 million total subscribers and 10 billion video views on YouTube.

As Figure 1 shows, between August 23 and August 30, Jovem Pan was recommended in 77.8% of the visits. During this stage of our study, their videos were the first recommended among news content in 55.6% (10) of the visits. These initial results were published in the Brazilian media on September 13 (Mello, 2022) and activists launched a Twitter campaign criticizing Jovem Pan (Nóbrega, 2022). On the same day, Jovem Pan commentators tried to discredit the study and said that others envied the group's “multiplatform engagement”<sup>3</sup>. Following social pressure and judicial charges (Rodrigues, 2022), we saw that recommendations to Jovem Pan diminished immediately after the media scandal. From September 15



**FIGURE 1** Recommendations of videos from Jovem Pan channels on YouTube's homepage between August 23, and November 1, 2022. Each circle represents a visit to YouTube's homepage, while its different colors represent the position of Jovem Pan channels among news sources on that particular visit. Red stands for the visits in which Jovem Pan channels were first recommended among news sources; yellow stands for the visits in which other news channels were recommended before Jovem Pan; green stands for the visits in which no Jovem Pan videos were recommended; and gray stands for the visits in which no news channels were recommended at all.

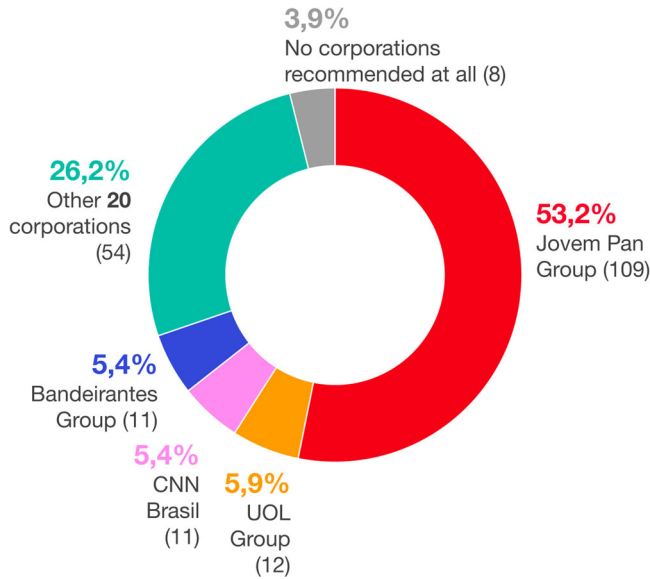
to 24, their videos appeared in fewer visits (55.2%) and were first recommended among news content in fewer of them (35%). Nevertheless, as the experiment continued, YouTube resumed and intensified Jovem Pan's advantage. Throughout the second round of the elections, Jovem Pan was recommended 95.2% of the time and their videos were first recommended among news content in 64.8% of our visits.

Following social and media pressure, YouTube began displaying banners on its homepage, which promoted “reliable content” about the 2022 elections after the disclosure of the first stage of the study. These ads redirected users to the Brazilian Electoral Commission official content, and some of them also linked to a Google search results page about “how to vote” in the election. Over the course of the experiment, the banners appeared in 55.1% (113) of the visits. They were first observed on the homepage on September 15 and were last observed on October 26, thus being absent during the final week of the electoral campaign.

Overall, Jovem Pan channels were first recommended among news videos in 53.1% of the visits we made (109), as seen in Figure 2. Nevertheless, Jovem Pan's advantage is not only noticeable when looking at the first recommended news channels. In terms of ideological diversity, the media groups we found are largely concentrated on the moderate right-wing spectrum, which reflects the Brazilian media ecosystem discussed in Appendix S1. Even with fewer (5) associated media groups than the moderate right-wing (30), the analyzed recommendations are biased toward the far-right because of Jovem Pan. Moderate left-wing and far-left news channels, on the other hand, are largely absent from our analysis and they were only first recommended on YouTube's homepage on one occasion. This reinforces the argument that YouTube's promised “content diversity” (Wojcicki, 2021) was not confirmed by our results, showing that many other relevant actors are underrepresented in its recommendations.

Against this backdrop, it could be argued that the results showing Jovem Pan's prioritization on YouTube's recommendation system may depend on the relatively high amount of content Jovem Pan puts out on the platform, compared to other sources. However, to briefly explore this hypothesis of input signals as a possible parameter for





**FIGURE 2** First recommended news channels, grouped by its respective media corporations, on YouTube between August 23 and November 1, 2022.

YouTube priority for recommendation, we used CNN Brazil as a baseline. As we discuss in greater depth in Appendix S3, CNN Brazil was the second most recommended media group throughout our study: their videos were recommended in 61% (125) of the visits we carried to YouTube's homepage—30% less than Jovem Pan. CNN Brazil is a cable TV channel focused on broadcasting news 24 h on a daily basis in Brazil and which makes all its content available online for free on YouTube, just as the Jovem Pan Channel does. Therefore, Jovem Pan's and CNN's YouTube strategies are identical: both channels are 24-h news channels and make all their content available on YouTube for free and in real time. Nonetheless, it is important to discuss an ethical flaw that may be implied in using input signals as a criteria for prioritizing content in recommendation, if that were the case, as it serves the platforms' interest but misleads users to consume low-quality content. It is important to note that low-quality content and disinformation are cheaper to produce than high-quality information, making it easier to scale up production, and thus the ethical problems involved in this hypothesis are clear.

Among the 525 Jovem Pan videos recommended on YouTube's homepage, we found several examples engaged in these far-right conspiracy theories as well as content attacking Bolsonaro's adversaries over the course of the electoral campaign. During the first stage of our study, the most recommended Jovem Pan video across our visits was the interview Jair Bolsonaro gave to the *Pânico* show on August 26.<sup>4</sup> In the show, Bolsonaro raised doubts about Brazil's electronic voting system, a regular theme for him, and defended ineffective drugs to treat COVID-19 (Pereira et al., 2022): a narrative that marked his presidency during the pandemic (Seibt & Dannenberg, 2021).

Four days before the first round of the elections, Bolsonaro's Liberal Party released a report raising doubts about Brazil's electronic voting system, backing the president's long-lasting claims (Fagundes, 2022). Commenting on the decision, a Jovem Pan journalist defended Bolsonaro, reinforced that the electronic voting machines were allegedly “unsafe” and “not auditable” and appealed to the “Brazilian People,” who were supposedly being left out of the electoral process.<sup>5</sup>

To understand the takedown strategies from both YouTube and Jovem Pan, we examined the 34 recommended videos (6.5%) that were no longer available as of February 2023, when we carried out our data analysis. Despite several accusations of spreading disinformation and conspiratorial claims throughout the campaign (Aragão & Menezes, 2022; Costa, 2022b; Estadão, 2022), we found a very small amount of removed content. Although the videos broadcasted attacks against the Brazilian Superior Electoral Court, defamation against Lula and claims of alleged state censorship against Jovem Pan during the elections, they were not outliers regarding content. When compared to other recommendations, these videos were as conspiratorial and disinformative as the available ones.

One of the unavailable videos was on the matter of a significant legal decision during the campaign: on the eve of the first round, Jovem Pan reported that a major crime boss declared support for Lula. In our tests, the video was the first recommended overall on YouTube's homepage. On voting day, the Electoral Court determined that, since the information was false, any posts with this statement should be removed (UOL, 2022b). However, Jovem Pan did not delete the video, but rather made it private.<sup>6</sup> In fact, we found this to be common practice as most of the unavailable videos were not deleted and are actually private (29), which means that the channels can make them public again if they decide to do so. Indeed, only one of the 525 recommended videos was takedown and removed by YouTube, which reinforces claims made by YouTube insiders to journalists that Jovem Pan videos receive “special treatment” by the platform's Trust and Safety Team and were not taken down, even when they were accused of spreading disinformation and hate speech (Costa, 2022a).

## DISCUSSION AND FUTURE WORK

At a time when the debate on platform regulation is intensifying and ambitious proposals are being designed, such as the Digital Services Act (DSA) and the Digital Markets Act (DMA) in Europe, our results indicate a worrying regulatory asymmetry between broadcast media and online corporations. Despite intense public pressure and the threats of judicial decisions, platforms have resisted being characterized as media companies and complying with the regulatory framework of this business (Napoli & Caplan, 2017). Several adaptations have been made on platforms affordances so they can comply with the DSA (Roth, 2023), although YouTube does not admit its changes are a reaction to any specific legislation.

Our study reinforces the argument that platforms respond to public scandals by making programmatic changes in their services and policies, but without structural alterations in their algorithms (Bossetta, 2020). Ultimately, YouTube's reaction can be considered a form of brandwashing, as the company aims to give an impression of commitment but little was done to curb disinformation during the Brazilian election campaign. Similarly, Tarvin and Stanfill (2022) have characterized YouTube's response as an instance of governance-washing, that produces the appearance of comprehensive and effective actions without solving what they purport to address. Indeed, our case study exposes the governance-washing approach adopted by YouTube, as the company gave the appearance of robust responses without substantive action during and after the Brazilian elections.

We also found that the lack of isonomy between candidates put forth by Jovem Pan gained scale with YouTube's recommendations, as suggested videos were not balanced in the electoral coverage, explicitly favoring Jair Bolsonaro. In Brazil, during the electoral campaign, the political favoring of candidates by broadcast channels is prohibited (Presidência da República, Lei no. 9.504, de 30 de setembro de, 1997, Diário Oficial da União, 21801, 1997) to avoid creating asymmetric conditions for competitors. For example, the Electoral Court opened an investigation against Jovem Pan in October 2022 because of

the lack of fair treatment of presidential candidates, upon the request of Lula's presidential campaign (Rodrigues, 2022). Nevertheless, there is no piece of local legislation or any regulatory framework that demands YouTube to be held accountable as a regular broadcast media corporation in these periods.

It is important to note that YouTube publicly positions itself against content takedown, claiming it is necessary to guarantee freedom of expression and to promote a diversity of voices on the platform (Wojcicki, 2021), even amid evidence of Jovem Pan's biased and hyperpartisan content (Aragão, 2023; Costa, 2022a; Ministério Público Federal, 2023). Broadly translated, the company uses these arguments to avoid taking responsibility for content moderation while hiding its criteria. However, our data shows that the YouTube recommender system does not promote diversity or serendipity for users' information discovery, nor guarantees freedom of expression, as it systematically recommended the same channels during our experiment. Researchers would benefit from noting how digital media environments prevalent in countries with similar information asymmetries may require a proactive approach during election periods to address recommendation biases.

Building upon our findings, we raise the question of what motivates YouTube's systematically biased recommendation. We speculate that there are opaque commercial agreements and business strategies at play, based on the assumption that the platform's recommendation decisions have an "advertising effect" of sponsorship and endorsement on users (Thompson, 2020). With the algorithm's authority to select, suggest, and hide certain videos, users are led to believe recommendations are based on criteria of relevance and previous interests. Additionally, custom predictions reinforce users' perception that such suggestions are correct, neutral, and exempted. Although platforms have been promoting the idea that recommendations are a purely technological issue, they have been developing opaque algorithms whose values, principles, and operating prerogatives are hidden. Thus, users are rarely aware of how content supply is structured and how commercial and political interests might impact their news feed (Gillespie, 2018).

Additionally, the results of our experiment, when added to the analysis of public documents (Google News Initiative, 2020) and newspaper reports (Costa, 2022a), show that YouTube considers Jovem Pan as a "success case." In this line, future work should consider the extent to which YouTube is "nudging" broadcast channels to give up copyright payments and release free content on the platform. We argue that Alphabet is pressuring for the platformization of TV (Evens & Donders, 2018), aiming to drag TV content onto the YouTube platform, so the company can take a slice of the advertising market share from TV.

Finally, the systematic, biased, and repetitive recommendation of content can also be interpreted as payola or "playola," as Billboard has called it for streaming services (Peoples, 2015; Wautlet, 2021). Moreover, repeated exposure has been directly correlated to people's perceptions about the world, particularly increasing belief in false information (Pillai & Fazio, 2021). Payola is an illegal practice for engineering habits, tastes, and opinions based on monetary rewards, commercial advantage or other types of reimbursement without the disclosure that the content is sponsored (Kosar, 2008). The severity of corrupting the cultural and news industry during an electoral period is even greater. In Brazil, electoral expenditures must be declared to the Brazilian Electoral Court, providing transparency for campaign funding and supporters. The local legislation also guarantees equal opportunities to all candidates in the media ecosystem. With an estimated 142 million users in Brazil (We Are Social & Meltwater, 2023), YouTube's hyperpartisan and extremist content recommendations may influence information consumption and decision-making. Against this backdrop, we argue that the possibility of this new form of payola warrants further investigation.

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## ENDNOTES

- See Kantar IBOPE Media “Audience Measurement”: <https://kantariibopemedia.com/conteudo/solucao/audience-measurement/>
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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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## **Appendix 1. The Brazilian media ecosystem and the electoral regulation**

The Brazilian media landscape stands out for its ownership and audience concentration and is historically characterized by the low circulation of newspapers, an agenda oriented toward the elite, the late development of the press, and television as a huge influence as a source of news (De Albuquerque, 2012). Diversity of information and perspectives in Brazilian media is also hindered by religious and political interference, as elected politicians and church leaders are stockholders and board members of several media companies (Aires et al., 2017). It is important to note that the lack of progressive newspapers and leftist mass media channels do not clearly reproduce political cleavages of Brazilian society (van Dijk, 2017): despite the importance of leftist parties, the Brazilian mass media is controlled by an economic elite of white men and conservative families (Reporters Without Borders & Intervezes, 2019). Family-owned groups, such as Globo, Band and UOL/Folha became multimedia conglomerates and adopted a market-driven, catchall attitude as democracy consolidated in Brazil (De Albuquerque, 2012). As a means for securing and legitimizing their privilege and power, these companies have been portraying local elites as a westernized minority endowed with the mission of civilizing Brazilian society (De Albuquerque, 2019). They have used the claim that they are the true representatives of public opinion to play a leading role vis-a-vis political institutions, positioning themselves beyond political parallelism (De Albuquerque, 2020).

Brazilian media conglomerates migrated toward a multi-platform environment to widen their market share (Reporters Without Borders & Intervezes, 2019), but have witnessed the migration of advertising investment to social media platforms and the subsequent mass defunding of journalistic institutions (Bell et al., 2017). While broadcasters are still dominant in terms of media expenditure, their perceived credibility has diminished in the last decade, as overall trust in news took a steep downturn and selective news avoidance has reached a new high (Newman et al., 2022). Brazilians now get their news online and YouTube has become the most popular social media platform for news consumption, with 43% of users relying on the platform for information (Newman et al., 2022). Against this backdrop, social media have become a primary instrument of power and influence during electoral campaigns and Jair Bolsonaro's disruptive presidential campaign in 2018 consolidated the internet as a key campaign battlefield in the country (Santini et al., 2021).

Recent electoral law reforms have allowed for online ads (Tribunal Superior Eleitoral, 2019), but online campaigns are still loosely regulated, as they benefit from an environment with little transparency for advertisers and users. Whereas digital platforms have little legal obligations regarding Brazilian public interest during elections, broadcast companies operating through public concession are subject to a series of restrictions to ensure all candidates are treated equally, as well as to prevent the political-ideological freedom of voters from being violated (Presidência Da República, 1997; Tribunal Superior Eleitoral, 2019). Besides reserving free time slots on radio and television channels, broadcasters are not able to air any program that promotes or criticizes — even if in a veiled way — a candidate or political party. The exception is news programs and political debates, but in any case, journalists are not allowed to give any type of privileged treatment to competitors in their programming.

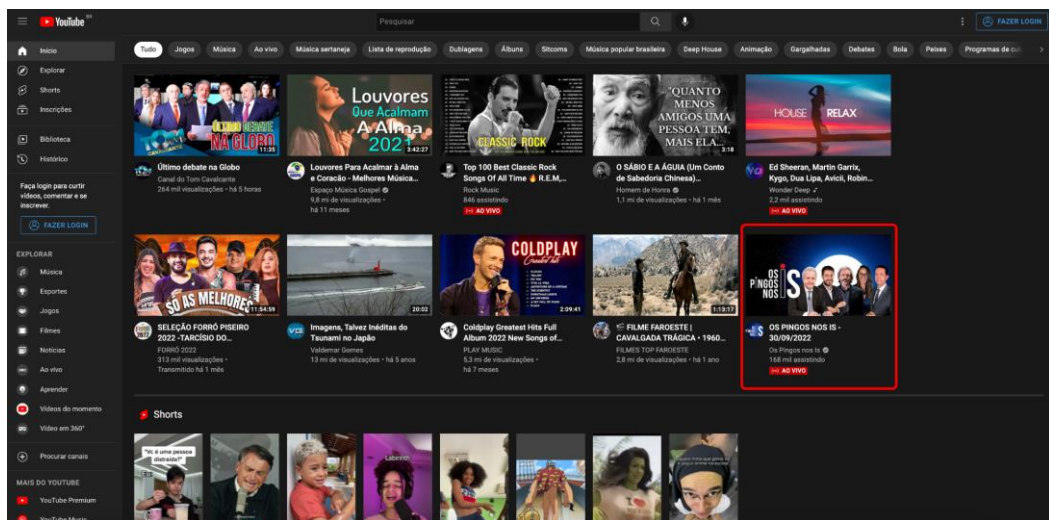
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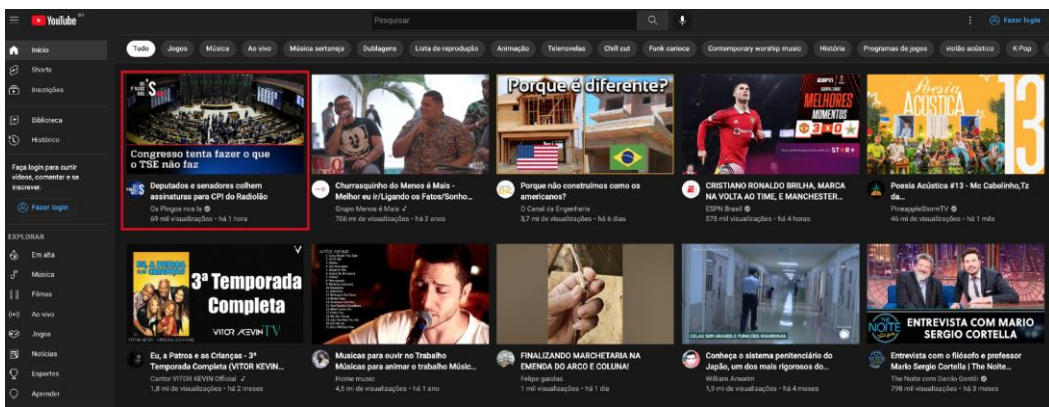
## Appendix 2. Auditing news diversity on YouTube’s homepage recommendations for new Brazilian users

For this study, we only considered recommendations to Brazilian news channels — not accounting for entertainment, influencers and sports channels related to media groups, as we considered them politically irrelevant for our purposes. On each visit to YouTube’s homepage, we scrolled down until no more new videos were recommended. After that, we would manually register the first recommended Brazilian news sources and the media groups responsible for them and the presence and position of Jovem Pan channels in relation to other news channels on the homepage. In order to present problematic Jovem Pan content in greater detail, we also analyzed the content of their recommended videos.

Thus, whenever we refer to “first recommended videos” throughout our analysis, we mean to address the positions of news sources on YouTube’s homepage in relation to one another. For instance, even though the highlighted Jovem Pan’s Os Pingos nos Is live feed is not the first recommended video overall in Figure 1a, we considered it the first news content recommendation, as it is only preceded by other types of content. We did the same for Figure 1b, which depicts another video from the same show in the first overall position.



**Figure 1a:** Screenshot taken while visiting YouTube’s homepage for the study, on September 30, 2023, at approximately 6:30 pm, depicting a live broadcast of Jovem Pan’s show Os Pingos nos Is preceded mostly by humorous or musical videos.



**Figure 1b:** Screenshot taken while visiting YouTube’s homepage for the study, on October 27, 2023, at approximately 10:45 pm, depicting a Jovem Pan video Os Pingos nos Is in the first overall position on YouTube’s homepage.

### **Appendix 3. Most recommended media groups on YouTube's homepage across the political spectrum**

To establish parameters for the argument that Jovem Pan's videos are systematically given priority on YouTube recommendations, we summarized the results of our visits to the platform's homepage, divided by media groups and their political leaning, as we see on Table 1. We also present the results for the three most recommended media groups identified within each political leaning: far-left, left-wing, undefined, right-wing and far-right. In addition to presenting the general results, we also divided them into three periods: (i) from August 15 to 30, 2022, when the first phase of the study took place; (ii) from September 15 to October 2, 2022, when the study was resumed until the day of the first round of the Brazilian general elections; and (iii) from October 3rd to November 1st, 2022, encompassing the entire campaign for the second round of elections. In Table 1, "Overall Recommendations" accounts for the total number of visits in which channels related to that particular media group or political leaning were recommended. Similarly, "First Recommended" accounts for the number of visits in which a channel related to that media group or political leaning was first recommended among news content channels.

We categorized the channels and media groups according to their political leaning based on the Brazilian scenario. It is worth noting that these categories may diverge from what is commonly understood from other countries' media activity (De Albuquerque, 2020). We consider far-right media outlets and groups, such as Jovem Pan, as those that present extremely conservative social and political views, supported by conspiratorial framings, alternative facts and a disdain for democratic values (Ground News, n.d.; Rone, 2020). In Brazil, the far-right gained prominence with the rise of Jair Bolsonaro to the presidency, uniting free-market ideology, religious premises and military authoritarianism (Almada, 2020; Reis, 2020; Cunha, 2023). As presented in Appendix 1, right-leaning media groups make up the majority in the Brazilian media ecosystem, which is marked by the strong defense of economic liberalism and market forces, resulting in the promotion of a neoliberal political and economic agenda (De Albuquerque, 2012; van Dijk, 2017).

Left-leaning media outlets, mostly outsiders to the market-driven media conglomerates, reflect moderate progressive political values and liberal democratic ideals. They support the promotion of social welfare in line with the institutionalized left parties in Brazil (Weyland, 2009; Madrid, 2010). Far-left media groups rely on alternative facts and conspiracy theories, minimizing the wrongdoing of authoritarian left-wing regimes and supporting communist values. These outlets also defend state intervention in the economy and in democratic institutions. The politically undefined media groups are marked by absent or incoherent political points of views in their coverage. In our dataset, this category comprised large news agencies and public media outlets.

Jovem Pan was, by far, the most recommended news media group throughout our analysis, way ahead of moderate right-wing CNN Brazil, which was recommended in 30% less visits. Altogether, there are fewer news channels on both extreme sides of the political spectrum, as they tend to concentrate on the moderate right-wing spectrum, reflecting the overall media landscape in Brazil. However, recommendations to Jovem Pan unbalance this scenario so that it is favorable to the far-right, even if its other news channels are not so frequently recommended. Although it is true that moderate right-leaning media channels were more recommended in total, that is expected due to the nature of the Brazilian media ecosystem landscape, as discussed in Appendix 1, and since more news channels fall under this category. For instance, the second most recommended far-right media group was Grupo Paranaense de

Comunicação, responsible for the newspaper Gazeta do Povo, which appeared on 91% less visits than Jovem Pan.

	TOTAL (205 visits)				August 23rd to 30th (18 visits)				September 15th to October 2nd (82 visits)				October 3rd to November 1st (105 visits)			
	Overall Recommendations		First Recommended		Overall Recommendations		First Recommended		Overall Recommendations		First Recommended		Overall Recommendations		First Recommended	
<b>Far-Right (5 media groups)</b>	<b>181</b>	<b>88.3%</b>	<b>113</b>	<b>55.1%</b>	<b>14</b>	<b>77.8%</b>	<b>10</b>	<b>55.6%</b>	<b>66</b>	<b>80.5%</b>	<b>32</b>	<b>39%</b>	<b>101</b>	<b>96.2%</b>	<b>71</b>	<b>67.6%</b>
Jovem Pan	180	87.8%	109	53.2%	14	77.8%	10	55.6%	66	80.5%	31	37.8%	100	95.2%	68	64.8%
Grupo Paranaense de Comunicação	15	7.3%	1	0.5%	2	11.1%	0	0%	2	2.4%	0	0%	11	10.5%	1	1%
Brasil Paralelo	6	2.9%	2	1%	0	0%	0	0%	1	1.2%	0	0%	5	4.8%	2	1.9%
<b>Right-wing (30 media groups)</b>	<b>190</b>	<b>92.7%</b>	<b>76</b>	<b>37.1%</b>	<b>15</b>	<b>83.3%</b>	<b>7</b>	<b>38.9%</b>	<b>71</b>	<b>86.6%</b>	<b>37</b>	<b>45.1%</b>	<b>104</b>	<b>99%</b>	<b>32</b>	<b>30.5%</b>
CNN	125	61%	11	5.4%	8	44.4%	1	5.6%	39	47.6%	4	4.9%	78	74.3%	6	5.7%
Bandeirantes	121	59%	11	5.4%	8	44.4%	1	5.6%	29	35.4%	4	4.9%	84	80%	6	5.7%
UOL/Folha	96	46.8%	12	5.9%	14	77.8%	5	27.8%	30	36.6%	3	3.7%	52	49.5%	4	3.8%
<b>Left-wing (6 media groups)</b>	<b>24</b>	<b>11.7%</b>	<b>1</b>	<b>0.5%</b>	<b>4</b>	<b>22.2%</b>	<b>0</b>	<b>0%</b>	<b>6</b>	<b>7.3%</b>	<b>1</b>	<b>1.2%</b>	<b>14</b>	<b>13.3%</b>	<b>0</b>	<b>0%</b>
Amuleto Filmes	14	6.8%	0	0%	4	22.2%	0	0%	4	4.9%	0	0%	6	5.7%	0	0%
Grupo Gente Nova	5	2.4%	0	0%	0	0%	0	0%	0	0%	0	0%	5	4.8%	0	0%
Brasil De Fato	4	2%	0	0%	0	0%	0	0%	0	0%	0	0%	4	3.8%	0	0%
<b>Far-left (4 media groups)</b>	<b>16</b>	<b>7.8%</b>	<b>0</b>	<b>0%</b>	<b>2</b>	<b>11.1%</b>	<b>0</b>	<b>0%</b>	<b>3</b>	<b>3.7%</b>	<b>0</b>	<b>0%</b>	<b>11</b>	<b>10.5%</b>	<b>0</b>	<b>0%</b>
Editora 247	10	4.9%	0	0%	0	0%	0	0%	2	2.4%	0	0%	8	7.6%	0	0%
Revista Fórum	6	2.9%	0	0%	2	11.1%	0	0%	2	2.4%	0	0%	2	1.9%	0	0%
N&A Produções Jornalísticas	2	1%	0	0%	0	0%	0	0%	1	1.2%	0	0%	1	1%	0	0%
<b>Undefined (8 media groups)</b>	<b>92</b>	<b>44.9%</b>	<b>7</b>	<b>3.4%</b>	<b>5</b>	<b>27.8%</b>	<b>0</b>	<b>0%</b>	<b>27</b>	<b>32.9%</b>	<b>5</b>	<b>6.1%</b>	<b>60</b>	<b>57.1%</b>	<b>2</b>	<b>1.9%</b>
BBC	57	27.8%	5	2.4%	0	0%	0	0%	22	26.8%	4	4.9%	35	33.3%	1	1%
Fundação Padre Anchieta	36	17.6%	1	0.5%	5	27.8%	0	0%	5	6.1%	0	0%	26	24.8%	1	1%
TV Senado	12	5.9%	0	0%	0	0%	0	0%	1	1.2%	0	0%	11	10.5%	0	0%

**Table 1:** Summary of recommendations for news content on YouTube’s homepage between August 23rd and November 1st 2022, divided by each recommended media group and their political leaning. “Overall Recommendations” accounts for the number of visits in which channels related to that particular media group or political leaning were recommended, while “First Recommended” accounts for the number of visits in which a channel related to that media group or political leaning was first recommended among news content.

Conversely, openly partisan left-leaning news channels, a category that consists mostly of independent outlets, were largely absent from our analysis. Moderate left-wing channels were present on only 24 (11.7%) of the visits we carried out to YouTube's homepage, against 16 (7.8%) in which a far-left outlet was recommended. These numbers are also expected, in part, because of the particularities of the Brazilian media ecosystem. Amuleto Filmes is responsible for the channel TV Afiada, a pro-Lula news initiative related to Conversa Afiada, a blog once kept by deceased Brazilian journalist Paulo Henrique Amorim. TV Afiada was the most recommended left-leaning news channel on YouTube's homepage, present on 14 (6.8%) of our visits. Recommended only once by the platform, Carta Capital, a weekly magazine controlled by Editora Basset, was the only left-leaning channel to be first recommended among news sources throughout our analysis.

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