

## **A Multidimensional Analysis of Political Homophily Among Politically Active Twitter Users in Uruguay**

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A key focus in the study of digital and social media in politics has been to investigate the homophily of online interactions and content exposure, often framed as the extent to which these platforms operate as echo chambers. However, research in this area has yielded mixed findings. One possible explanation is that the degree of homophily in online behavior varies depending on the specific type of behavior examined. This paper contributes to this debate by measuring multiple indicators of political homophily within the same sample. We identified a near-census list of ~44,000 politically active Twitter (now X) users in Uruguay and retrieved all their interactions—including retweets, replies, quotes, and likes—over a defined period between 2021 and 2022, along with the accounts they follow. This dataset, comprising 7,172,636 tweets, 9,711,053 likes, and 13,660,197 following links allows us to assess the extent of political homophily across four dimensions: following behavior, interactions among ordinary users, interactions with elites, and media consumption. Our study makes three key contributions. First, it fills the gap of a single study that estimates different outcomes of political homophily in online communication using the same sample. Second, it focuses on politically active users who play a central role in shaping online political discourse. Third, it extends research beyond the typical U.S. and Western European cases by examining Uruguay, a country with a stable party system, strong partisan attachments, and low affective polarization. Our findings show that while politically active users are not completely isolated within echo chambers,

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they exhibit a strong tendency toward homophily while confirming expected variation across dimensions noted in previous research. This pattern of high homophily persists even in a setting of low affective polarization. These results highlight the nuanced ways political homophily manifests across different behaviors and settings.

*Keywords:* *Echo Chambers, Political Homophily, Twitter*

## Introduction

Social media platforms have fundamentally transformed how information is produced and consumed. These platforms offer an information environment defined by expanding media choices, the ability to connect with people and content based on shared interests, and the filtering of information through social networks and algorithmic recommendations. These changes have sparked concerns that greater access to information might deepen partisan divisions, as individuals selectively consume content that reinforces their prior beliefs, potentially exacerbating political polarization (Iyengar and Hahn, 2009; Garrett, 2009). A key concept discussed in influential early works on digital media and political polarization is the notion of “echo chambers,” which describes the tendency of individuals to engage selectively with like-minded users, leading partisans to lose sight of the opinions of political others (e.g., Sunstein, 2018; Jamieson and Cappella, 2008). The term has become central to public discourse on the influence of digital media on political interactions and democracy, with widespread claims suggesting that “online ideological echo chambers are both highly pervasive and deeply problematic for society” (Eady et al., 2019, 1).

Given these concerns, research on social media and politics has focused heavily on understanding the extent to which individuals encounter political disagreement in online conversations and the prevalence of political homophily or bias in online behavior (Tucker et al., 2018; Wojcieszak et al., 2022). Yet the degree to which political homophily characterizes social media platforms remains controversial. The diverse nature of social media content in terms of platforms, interactions, and issues has led to various research approaches. Scholars have used several indicators to assess political insularity in users’ online experiences, including the ideological slant of content they are exposed to, the ideological dispositions of the accounts they follow and interact with, including elites and media accounts. While

these measures all capture aspects of political homophily on social media, they may not reflect the same bias levels. Studies have found significant variation in the degree of political homophily detected, depending on the specific outcome being measured (Lorenz-Spreen et al., 2023; Terren and Borge-Bravo, 2021; Hartmann et al., 2025). Some studies suggest that users predominantly engage with like-minded individuals (Barberá et al., 2015; Conover et al., 2011; Cinelli et al., 2021), though this pattern varies by topic and type of interaction. For instance, conversations about non-political events like the Olympics or the Oscars, as well as interaction types that allow for disagreement, tend to be far less polarized (Barberá et al., 2015; Conover et al., 2011). Furthermore, interactions involving political elites often show pronounced political bias (Wojcieszak et al., 2022). Conversely, other research finds that online media consumption tends to be ideologically diverse (Eady et al., 2019; Guess, 2021; Fletcher et al., 2021), and exposure to political content often includes at least some cross-cutting perspectives (Bakshy et al., 2015; Nyhan et al., 2023).

While the explanation for these mixed findings might be that the different outcome measures reflect varying degrees of homophily or insular communication, researchers have not analyzed the different dimensions among one sample. Therefore, an alternative explanation is that some of the variations in the findings might be explained by using different samples across studies (Wojcieszak et al., 2022). The current literature lacks a large-scale descriptive account of political homophily across the most relevant dimensions of social media use (namely, following behavior, interactions with elites and ordinary users, and media consumption) within the same sample of users. This paper advances the literature by conducting a comprehensive study of several indicators of political homophily in online behavior within the same sample. Specifically, we employ a user-based approach to study political homophily among politically active Twitter (now X) users in Uruguay in 2022. We first identified a near-census list of ~44,000 Uruguayan users who are politically active on Twitter. We then obtained the complete list of users they follow, their most recent 200 tweets (including author-based tweets, retweets, replies, and quotes), and their most recent 150 likes. We then estimated the ideology of each user and the political bias of the same users in terms of media consumption, interactions with elites, following behavior, and overall engagement categorized by type of interaction and topic discussed.

This paper provides at least three contributions to the literature on political homophily in online communication. First, it fills the gap of a single study that estimates different outcomes of political homophily in online communication using the same sample. By doing this, the current study innovates in testing whether the results from previous research differ in the extent of political homophily on different

dimensions of evaluating degrees of insular communication by using one sample.

Second, we focus on politically active users who play a central role in shaping online political discourse and are of particular interest to the study of insular communication patterns. Politically active users are relevant since they tend to be more engaged and politically extreme (Barberá and Rivero, 2015; Yu, 2016; González-Bailón and Lelkes, 2023; Blazina, 2022), and therefore they constitute an interesting case study since there are theoretical reasons to expect them to be more likely to live in echo chambers. Additionally, these users drive the majority of political content on social media, shaping the information environment for passive users, making it crucial to understand the extent of their insulation from opposing views. Moreover, narrowing our focus to this subgroup allows us to obtain a near-census list of politically active Uruguayan Twitter users without exceeding API rate limits, enabling a comprehensive analysis of the political content they create and diffuse.

Third, our study contributes to the literature by extending beyond typical U.S. and Western European cases to examine Uruguay, a country with a stable party system, strong partisan attachments, and low affective polarization. This contributes to the needed expansion of this literature beyond the U.S. context (Tucker et al., 2018; Hartmann et al., 2025).

Our findings reveal that politically active Twitter users in Uruguay exhibit strong homophily patterns in their online behavior. However, consistent with broader research, most users do not live in complete echo chambers. While users are significantly more likely to engage with co-partisan users and elites forming ideologically homogeneous clusters, most also interact with mainstream media accounts and engage to some extent with moderate or even out-partisan users. This suggests that political homophily manifests differently across various dimensions of social media behavior. Additionally, our evidence shows that these patterns persist even in a low-affective polarization context like Uruguay. The following sections present our findings and discuss their implications within the broader literature.

### **Political Homophily in Online Behavior**

The digital media era has dramatically increased individuals' informational choices. While some scholars have argued that this expansion could promote a more pluralistic democratic discourse (Mutz, 2006), research quickly shifted focus toward concerns that digital media, and social media in particular, encourages individuals to live in ideologically insular communities or “echo chambers”. Consequently, politicians and the media have frequently warned that social media fosters online echo chambers, posing risks

to democratic processes and societal cohesion (Jungherr et al., 2020; Eady et al., 2019). These concerns stem from at least three key factors. First, selective exposure describes individuals' tendency to seek information that aligns with their preexisting beliefs to avoid cognitive dissonance (Iyengar and Hahn, 2009). Second, filter bubbles, created by algorithmic curation, amplify this effect by disproportionately exposing users to content that reinforces their attitudes (Pariser, 2011). Third, political homophily reflects the broader tendency of individuals to associate with others who share similar characteristics and beliefs (McPherson et al., 2001). Although homophily is most commonly used to describe interpersonal relationships, we use the term here in a broader sense, encompassing political biases in patterns of media consumption and interactions with elites, in line with recent work (e.g., Cheng et al., 2024).

Indeed, numerous studies have documented highly homophilous political interaction networks across various platforms (Barberá et al., 2015; Cinelli et al., 2021; Wojcieszak et al., 2022). However, growing evidence suggests that most users do not reside in complete echo chambers, either in terms of news consumption (Eady et al., 2019; Guess, 2021) or overall information exposure (Bakshy et al., 2015; Nyhan et al., 2023). One explanation for these results is incidental exposure: users may encounter cross-ideological content unintentionally, either because many users primarily use social media for entertainment rather than political information (González-Bailón and Lelkes, 2023), because of weak ties (Eady et al., 2019), or intermediaries such as news portals (Stier et al., 2022). This incidental exposure may counterbalance users' tendency toward selective exposure and prevent individuals from forming echo chambers.

Empirical studies on the extent to which individuals inhabit echo chambers often yield seemingly paradoxical results (Lorenz-Spreen et al., 2023), a pattern that recent research attributes to differences in how political biases in social media use are conceptualized and measured (Terren and Borge-Bravo, 2021; Lorenz-Spreen et al., 2023; Hartmann et al., 2025). Research on political biases in online behavior has taken various empirical approaches, each focusing on different dimensions of social media use. One prominent strand of research investigates the ideological slant of the content users are exposed to. However, measuring direct behavioral exposure is challenging due to data limitations (see Nyhan et al. (2023) for an exception). As a workaround, some studies have examined the ideological composition of users' social networks by analyzing who individuals follow on social media, offering a proxy for potential exposure to political content (Bakshy et al., 2015; Rivero, 2019). Other scholars have focused on political homophily in user interactions, such as liking, commenting on, or resharing posts (Barberá et al., 2015; Cinelli et al., 2021). In addition to peer interactions, some scholars have examined users'

engagement with political elites (Wojcieszak et al., 2022), exploring whether users' interactions with high-profile figures contribute to political bias. Finally, researchers have investigated media consumption patterns, examining how users' online media diets are shaped by their political affinities (Eady et al., 2019; Guess, 2021; Fletcher et al., 2021). Although all these studies provide valuable insights into political biases in online behavior, they often address distinct aspects of social media use. Different dimensions may exhibit unique dynamics. The following section reviews the existing evidence across these key dimensions to assess the broader patterns of political biases in social media behavior.

### **Content Exposure and Following Behavior**

A central way of conceptualizing political bias in online behavior focuses on content exposure and following networks, that is, what individuals see in their news feeds and the political orientation of the users whose content they choose to access. There are very few systematic measures of content exposure on social media platforms. A notable exception is the work of Nyhan et al. (2023) that analyzed Facebook feed data, finding that users receive most of their content from like-minded sources (50%) with a non-negligible amount of content being cross-cutting (14%).<sup>1</sup> This is consistent with previous research that shows that for a large sample of Facebook users in the US, on average, more than 20% of a given user's Facebook friends are from the opposing party (Bakshy et al., 2015). Barberá (2014) analysis of Twitter users' networks found that approximately 33% of tweets seen by a sample of politically engaged nonverified users are from opposing viewpoints. Eady et al. (2019) link of a representative survey of Americans with their Twitter data found that 41% of liberals follow at least 5% of non-elite accounts that are at least as conservative as Fox News and 66% of conservatives follow (at least 5%) non-elite accounts as far as MSNBC. Overall, these results indicate strong homophily but not complete segregation along partisan lines in content exposure and non-elite following behavior

### **User Interactions**

Another key conceptualization of echo chambers focuses on measuring homophily within social media communication structures. This approach examines the extent to which online interactions cluster among ideologically aligned networks (Hartmann et al., 2025). Early studies on political interactions online revealed significant partisan segregation. For example, Conover et al. (2011) examined tweets from the 2012 US election, finding that the communication structure was highly polarized along partisan

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<sup>1</sup>An important caveat is that these measures include elites and media accounts (groups and pages)

lines. Similarly, Barberá et al. (2015) discovered that 75% of retweets on political topics were shared among like-minded users. More recently, Cinelli et al. (2021) analyzed content on controversial political issues such as gun control across platforms like Gab, Facebook, Twitter, and Reddit, identifying homophilic patterns in network structures and information diffusion skewed toward users with similar political views. However, some important nuances exist. First, the extent of political bias in interactions depends heavily on the type of interaction being studied. When examining replies, which, unlike reshares and likes, do not carry a clear positive sentiment, the degree of partisan segregation largely diminishes (Conover et al., 2011; Barberá, 2015). Second, the topic of discussion plays a role. Barberá et al. (2015) found that non-political conversations, such as those about the Olympics or the Oscars, exhibit much less partisan segregation. An important limitation of extant research is that these analyses do not necessarily focus on the same users interacting in political and non-political discussions.

### **Interactions with Political Elites**

Given the prominent and highly active role that political elites play in shaping discourse on social media (Wojcieszak et al., 2022), users' interactions with these elites constitute a key dimension of political homophily online. Previous research has consistently found strong partisan biases in how users engage with political elites. For example, Wojcieszak et al. (2022) analyzed a random sample of 1.5 million Twitter users and found that while most users do not follow political elites, those who do overwhelmingly follow in-party elites (90%) compared to out-party elites (10%). Moreover, these users share content from in-party elites 13 times more often than out-party elites. Similarly, Eady et al. (2019) reported that only 16% of individuals in the left-most ideological quintile follow any politician as far to the right as Donald Trump, while 35% of the most conservative quintile follow at least one political elite as far to the left as Hillary Clinton. Additionally, Rivero (2019) found that ideology plays a significant role in determining political elite following behavior on Twitter.

### **Media Consumption**

Some of the strongest evidence against the existence of echo chambers comes from studies of online media consumption, which examine the extent of overlap in the ideological distributions of media accounts followed by left- and right-wing users. This dimension is particularly relevant to the mechanism of selective exposure (Iyengar and Hahn, 2009). There is vast evidence using social media and search engine data suggesting that individuals' media diets are generally diverse (Gentzkow and Shapiro, 2011; Guess, 2021; Eady et al., 2019; Fletcher and Nielsen, 2017; Bakshy et al., 2015). For instance, Messing and

Westwood (2014) experimental evidence suggests that social endorsements reduce selective exposure to news and therefore expect that social media should increase the variety and diversity of the political information exposed. Guess (2021) used behavioral data on online media consumption in the U.S. and found that most people maintain relatively balanced media diets, with approximately 65% overlap in the content consumed by Democrats and Republicans. Similarly, Eady et al. (2019) analyzed the media accounts followed by a representative sample of Americans, finding considerable ideological overlap. Studies using survey data also reveal little evidence of echo chambers in media consumption (Fletcher and Nielsen, 2017; Fletcher et al., 2021). Additionally, Yang et al. (2020) employed multiplatform observational data, showing that increased mobile access to news results in greater exposure to diverse content.

### **Methods and Data**

In this paper, we present a large-scale quantitative descriptive analysis of the social media behavior of politically active Twitter users in Uruguay. This section begins by providing context about Uruguay and explaining why it constitutes a relevant case for studying online political behavior. We then outline the process used to identify a near-census list of users responsible for most political content on Twitter in Uruguay and describe the information collected for each user. Next, we detail our conceptualization and operationalization of political elites as well as the methods used for estimating users' ideological leanings and classifying tweets based on their content. We then provide evidence that the identified list of PAUTUs accounts for most of Uruguayan political content on Twitter. Lastly, we detail the process to classify tweets as politics or sports-related.

### **The Uruguayan Case**

Uruguay is a politically stable country with one of the highest democratic records in Latin America. Its party system is among the oldest in the West, with roots dating back to the 1830s (Mainwaring and Scully, 1995). Over the past four decades, political parties have become more ideologically aligned (Zucco Jr, 2013). Two primary catch-all blocs have consolidated: the center-left Frente Amplio and the center-right Republican Coalition (formerly known as the Multicolor Coalition), which comprises the Blanco Party, the Colorado Party, Cabildo Abierto, and the Independent Party (Nocetto et al., 2020). These parties have also become more programmatic during this period (Kitschelt et al., 2010).

As in many countries, social media has recently become a key element of electoral campaigning

in Uruguay. While some candidates began using platforms like Facebook and Twitter during the early 2010s, social media, particularly Twitter, became an essential campaign tool in the 2019 general election (Bogliaccini et al., 2019). However, Uruguay also has a long tradition of political debates in traditional media. Throughout the 20th century, parties and factions often ran their own newspapers, and political discussions were—and remain—central to public life. Uruguay's enduring democratic tradition, characterized by broad political participation and a strong culture of social dialogue, has further entrenched political engagement in daily life.

Alongside politics, soccer has been one of the country's primary cleavages in both elite and popular discourse. Soccer is a key source of national pride in Uruguay. A small country between two large countries such as Argentina and Brazil, its early success in soccer helped it gain international visibility. The two championships obtained at the Olympic Games of 1924 and 1928 allowed the country to persuade FIFA to host its first-ever World Cup in Montevideo in 1930. Having defeated Argentina at the final game of the 1928 Olympics, Uruguay repeated the feat in 1930. In 1950, Uruguay defeated the heavily favored Brazilian team in Rio de Janeiro to claim its fourth title, an achievement widely regarded as one of the most heroic feats in the history of soccer. By the 1960s, Uruguayan soccer authorities led the organization of the South American clubs' level competition, which the Uruguayan main domestic teams—Peñarol and Nacional—dominated over the next three decades. Peñarol even defeated Spanish giant Real Madrid in a world championship final in 1966. Politics and soccer have been intertwined in Uruguay for over a century, with soccer holding a place of importance for Uruguayan society comparable to that of politics.

Uruguay has a population of approximately 3.5 million, with widespread internet access, including free public Wi-Fi in many spaces. Social media participation is notably high by regional standards: around 80% of the adult population uses Facebook, and nearly 30% has a Twitter account, with 10% using Twitter daily (Agencia de Gobierno Electrónico y Sociedad de la Información y del Conocimiento, Instituto Nacional de Estadística, 2022). This combination of extensive social media engagement, high political interest, and a relatively small population enabled us to compile a near-census list of approximately 44,000 politically active Twitter users, that is responsible for most of the political content posted on the platform, as detailed below and without exceeding Twitter API limits.

The country provides a compelling case for studying political biases in online behavior. Uruguay has high and influential levels of party identification (LAPOP, 2023; Opertti, 2020), a key driver of

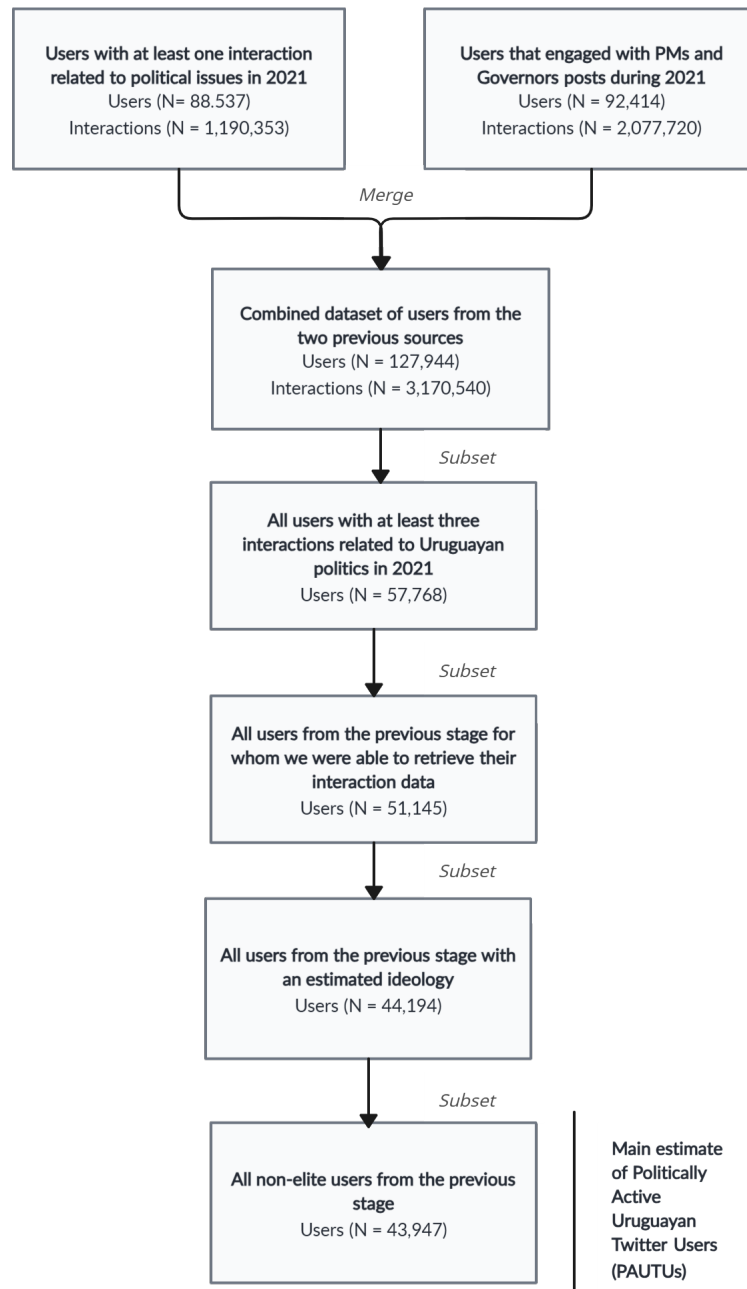
political homophily. However, unlike the commonly studied case of the United States, Uruguayans exhibit low levels of affective polarization (El Observador, 2024; Schuliaquer, Iván, 2024). Uruguayan elite discourse is generally civil, and political violence has been nearly nonexistent in recent decades. Expert assessments from V-Dem identify Uruguay as one of the least polarized countries globally in terms of overall political polarization, societal divisions, and political violence (Coppedge et al., 2025; Pemstein et al., 2025)<sup>2</sup>. Thus, Uruguay offers a unique context for studying political interactions in a low-polarization environment.

### Sampling of Users

To identify a comprehensive list of politically active Uruguayan Twitter users, we first downloaded all tweets, retweets, quotes, and replies that included keywords related to 47 political issues in Uruguay during 2021, as well as all the replies to that set of posts. These issues were selected by means of a monitoring of relevant issues in the media that we performed throughout the entire year. These issues were the most salient in Twitter, assuring we had data to cover a wide range of diverse interactions. We also downloaded all mentions (tweets, retweets, replies, and quotes) of Uruguayan politicians (parliament members and governors) for the entire year 2021. We then combined the two sources to create a list of all politically active Uruguayan Twitter users (PAUTU), defined as users responsible for at least 3 interactions in this combined dataset. This procedure yielded a total of 57,768 users. Figure 1 illustrates the procedure to identify these accounts. Further details are provided in Appendix A.

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<sup>2</sup>As discussed by McCoy (2024), Uruguay shows high levels of affective polarization based on the CSES measure of party like/dislike scores, likely due to its long-standing stable competition between family parties with a clear ideological cleavage. However, we align with Wagner (2024) in arguing that these scores do not necessarily indicate partisan animus.



**Figure 1.** Politically Active Uruguayan Twitter Users (PAUTU) Identification Procedure

### **Interactions Data**

After compiling a near-census list of users discussing politics in Uruguay, we retrieved data for each user in the PAUTU list whose account remained open and public (89%). Specifically, we collected: (1) the complete list of accounts they followed, (2) their 150 most recent likes, starting from the download date in August 2022 and going backward in time, and (3) their 200 most recent interactions (tweets, retweets, replies, or quotes) over the same time window. Due to API limitations, we were restricted to retrieving up to 150 likes and 200 interactions per user. In cases where users had longer activity histories and low frequency, this could include data from well before 2022. Unlike keyword-based approaches, this user-focused method captures all interactions within a given timeframe, regardless of the topic. This approach enables a more systematic analysis of social media behavior at the user level rather than isolating specific discussions based on keywords. In total, we retrieved 7,172,636 likes and 9,711,053 tweets.

### **Political Elites Conceptualization and Measurement**

The definition of political elites varies significantly across studies, as acknowledged by Kertzer and Renshon (2022). However, as Kertzer and Renshon pose, these definitions tend to be conceptually intertwined, emphasizing occupation, demographic composition or specific cognitive traits. Furthermore, the definition of political elites, albeit not always explicitly defined, also varies among studies on social media behavior and the interaction of elites with other users.

For our analysis, we identified three sets of political elites. The first two sets follow a classical occupational approach to defining political elites (Putnam, 1976; Kertzer and Renshon, 2022), restricting the category to individuals occupying formal political roles, such as elected officials and party leaders. This approach aligns with several seminal studies in the field (Eady et al., 2019; Barberá, 2015).

First, we identified a group of 45 elite accounts for whom we downloaded all their interactions in 2021. These accounts were used to identify politically active Uruguayan Twitter users (PAUTUs), as shown in Table A1 on Appendix A. This list includes only Senators and Governors for two main reasons. First, to maintain the partisan balance, and second, due to API rate limit issues, as we downloaded all interactions with these elites for an entire year.

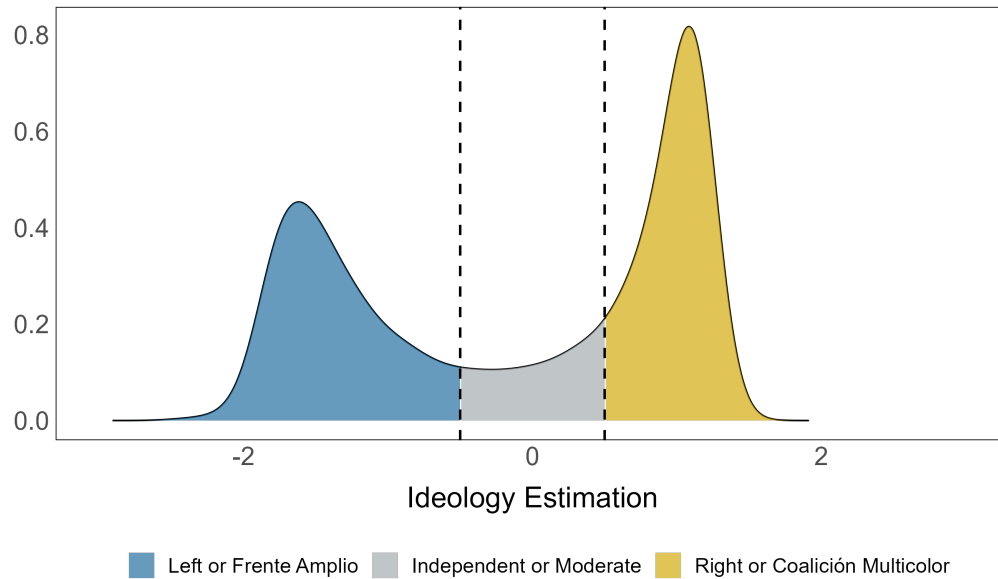
The second set comprises 195 elite accounts used in our main analysis of political homophily

in user–elite interactions. This expanded list builds on the first set of elite accounts, but also includes other political figures such as cabinet members, lower chamber parliamentarians, and official party or factional accounts, as detailed in Panels A and B of Table A7 in Appendix C.

Third, as described below, we expand the second list of political elites to a total of 314 accounts (see Panels C–F in Table A7 in Appendix C) when estimating the ideology of PAUTUs. For this purpose, we apply a broader definition of political elites in order to strengthen the basis for ideological classification. This includes users with domain-specific expertise or experience, such as activists and media accounts with explicit ideological profiles (Saunders, 2018, 2022; Guisinger and Saunders, 2017).

### **Ideology Estimation and Validation**

Since this analysis relies on estimating the prevalence of cross-party interactions, determining users' political ideology is a crucial step. Our approach builds on the latent space model of political ideology developed by Barberá (2015), which has been extensively validated at both aggregate and individual levels in the U.S. and Europe (Barberá, 2015; Wojcieszak et al., 2022). This method applies correspondence analysis to users' patterns of following political elites, assuming that the likelihood of following a given elite decreases as ideological distance increases in the latent space. For this estimation, we used the expanded set of 314 political elites described in the previous section (Panels A–F of Table A7). We successfully estimated the ideology and obtained interaction data of 43,947 users, representing 76% of the initial PAUTU sample. These users constitute the primary dataset for analysis. Figure 2 displays the distribution of estimated ideal points for all PAUTUs. The distribution is bimodal, with both political groups of similar size, though left-leaning users exhibit greater dispersion than right-leaning users. The colors and vertical lines indicate the discrete user classifications used throughout this paper, with thresholds set at -0.5 and 0.5.

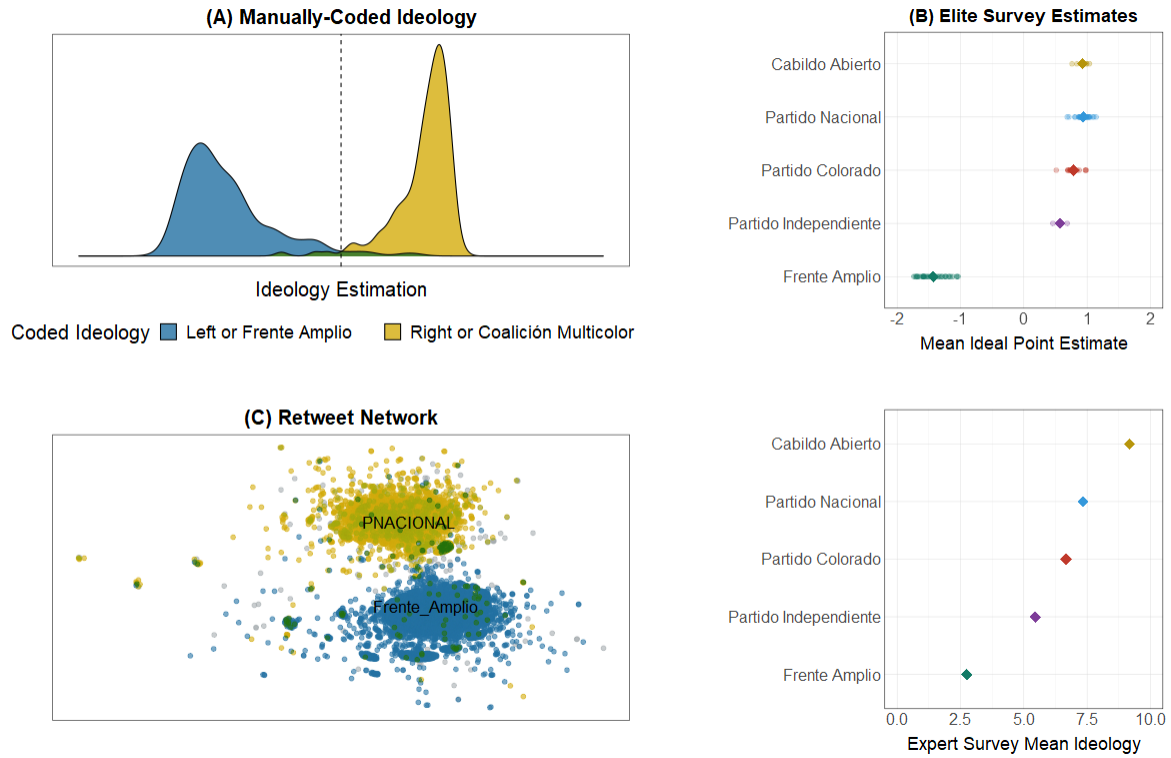


**Figure 2.** Ideology Estimate Distribution

***Note:** Distribution of estimated ideology of politically active Uruguayan Twitter users, and posterior discrete classification.*

This method has been successfully validated in the U.S. and several European countries using offline measures, including roll-call votes in Congress, expert surveys, individual-level voter registration, and aggregate partisanship distribution (Barberá, 2015; Barberá et al., 2015). To assess the validity of our ideology estimates we conducted three tests, summarized in Figure 3. Panel A compares our estimates to a manually coded ideology measure based on user profile descriptions and a sample of 20 tweets for 1,000 randomly selected users. The inter-coder agreement was 89% (Cohen's Kappa = 0.83). As shown in Panel A, most users manually classified as supporting either the right-wing Coalición Multicolor (CM) or the left-wing Frente Amplio (FA) were correctly identified. Among the 645 users manually classified into these two groups, 91% were correctly assigned, 8% were categorized as moderates, and only 1% were misclassified as supporting the opposing bloc. Panel B examines whether our ideology estimates for political elites align with expert assessments from the 2020 Chapel Hill Expert Survey for Latin America (Martínez-Gallardo et al., 2023). The results confirm that the placement of parties in our latent space corresponds with their positions in the ideological spectrum, with centrist

parties within the right-wing bloc correctly distinguished from more right-leaning ones. Finally, Panel C presents the retweet network from a highly contentious referendum held in 2022 expected to generate politically polarized interactions. The center-right coalition opposed the referendum, while the center-left Frente Amplio supported it. The resulting retweet network reflects this partisan divide, forming two large communities corresponding to Uruguay's major electoral blocs. In the figure, each node is colored based on the estimated ideology, showing that most users in the anti-referendum cluster align with the right (CM), while those supporting the referendum align with the left (FA).



**Figure 3.** Ideology Estimation Validation

**Note:** Panel A shows the estimated ideology distribution for users manually coded as close to Frente Amplio (left) or Coalición Multicolor (right). The top graph of panel B shows the estimated ideology of all members of parliament, governors, members of cabinets and political parties' Twitter accounts, and its average is indicated with a diamond. The bottom graph of panel B shows the mean ideology of each of the five main Uruguayan political parties according to the 2020 Latin America Chapel Hill Expert Survey (CHES) (Martínez-Gallardo et al., 2023). The graph in panel C shows the node layout of a retweets network of 90,132 retweets ranging from March 21 to March 29, 2022, related to the “Ley de Urgente Consideración”, a mandatory referendum held on March 27, 2022, to decide whether to repeal an urgent law president Lacalle Pou passed early in his administration. The retweet network was estimated using the Fruchterman-Reingold algorithm, and each node (user) is colored according to its estimated ideology; edges (retweets) are not represented to ease interpretation.

### Coverage Validation

To ensure that the identified list of PAUTU accounts for most Uruguayan political interactions on Twitter, we tested what proportion of interactions regarding a large out-of-sample issue, a mandatory refer-

endum about an urgent omnibus law *Ley de Urgente Consideración (LUC)* were made by the users we identified in the PAUTU list. We downloaded over 44,000 LUC-related interactions from November 11 to November 18, 2021. Table 1 shows the out-of-sample political content coverage of different metrics that the PAUTU estimates have. The validation interactions exclude those made by our set of political elites' accounts since those are purposely excluded from our PAUTU estimation. This is solid evidence that this list of users does account for the vast majority of Uruguayan political interactions on Twitter at the time.

**Table 1:** Out of Sample Coverage of Political Content by PAUTU Sample

|                                                                                                                                                 | Number<br>of Users | Total<br>Interactions | User-<br>Authored<br>Tweets | Retweets | Replies | Quotes | Unique<br>Users |
|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------|-----------------------------|----------|---------|--------|-----------------|
| <b>Initial Sample:</b> All users with at least 3 interactions                                                                                   | 57,768             | 97.6%                 | 97.9%                       | 97.7%    | 97.2%   | 99.1%  | 92.3%           |
| <b>Final Sample:</b> All non-elite users with at least 3 interactions with likes, followed and timelines data retrieved and ideology estimation | 43,947             | 85.6%                 | 74.1%                       | 86.7%    | 84.3%   | 85.5%  | 80.3%           |

**Note:** The first column of the table presents the number of PAUTU users identified at different stages of the identification process. The remaining columns display the percentage of political content produced by users in each corresponding PAUTU sample. Out-of-sample interactions refer to engagements collected through keyword searches related to the urgent omnibus law, *Ley de Urgente Consideración (LUC)*, between November 11 and November 18, 2021.

### Tweets Classification

Some analyses require classifying tweets based on their content. Given the diverse nature of interactions, we focus on distinguishing between tweets related to politics and those related to sports. The inclusion of sports is justified by its prevalence as a social media topic in Uruguay and its general lack of overlap with political discussions, making it relatively straightforward to identify. In this context, politics refers specifically to Uruguay's national politics, including government, politicians, political parties, institutions, and political behavior (Remy et al., 2019).

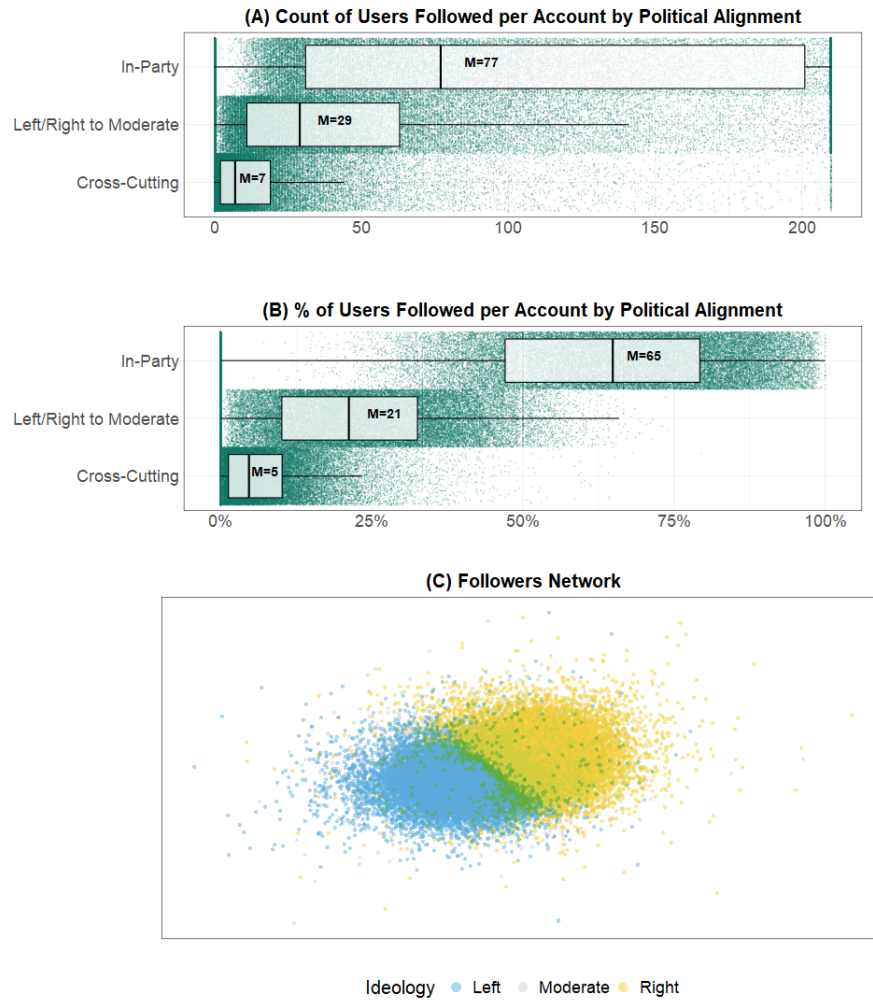
We employed a multi-step classification process to build a context-specific dictionary, as there are no available dictionaries or LLMs trained with Uruguay-specific data. First, we used a dictionary-based approach by manually identifying initial keywords conceptually linked to politics (e.g., the Spanish term for “president” or the Twitter handles of prominent political figures) and sports (e.g., the Spanish

term for “soccer” or the accounts of major Uruguayan soccer teams). Second, recognizing that manually crafted dictionaries can introduce biases (King et al., 2017), we expanded these initial keyword lists using a word embedding model. This model identified additional contextually related terms based on the co-occurrence frequency of unigrams (individual words) and bigrams (pairs of consecutive words). Finally, a tweet was classified as political or sports-related if it contained at least one keyword from the final, context-specific dictionaries. Overall, among both tweets and likes queries, 17% of the downloaded interactions were classified as political, while 9% were categorized as sports-related. To validate this approach, we compared the dictionary-based classifications to a manually coded set of 800 tweets. The inter-coder agreement was 89% for political content (Cohen’s Kappa = 0.77) and 95% for sports content (Cohen’s Kappa = 0.87). The classification achieved an accuracy of 85%, a recall of 76%, and a precision of 95% for political content, while for sports content, accuracy was 90%, recall was 92% and precision was 79%. Further details on the classification process are provided in Appendix D.

## Results

### Content Exposure and Following Behavior

We begin by analyzing the following behavior of PAUTUs. As expected, the decision to follow other non-elite Twitter users displays high levels of political homophily, as shown in Figure 4. Panel A illustrates the total number of accounts followed by each user who follows at least 25 accounts with an ideological estimation across different categories, with boxplots summarizing the distribution. Most users predominantly follow in-party accounts. However, PAUTUs still follow a median of 7 cross-cutting accounts and 29 moderate accounts. Panel B presents the same data as percentages, revealing a similar trend. Among the accounts for which we could estimate ideological alignment, co-partisan accounts represent a median of 65% of users’ follows, with the upper quartile reaching 78%. Notably, even among politically active users, very few follow exclusively or predominantly in-party accounts. Panel C visualizes the network of PAUTU follows, reinforcing the numeric findings. While politically active users demonstrate a high degree of homophily in their following behavior, they do not exist in entirely insular communication spaces. Most users follow at least some cross-cutting accounts and a notable number of moderate accounts, suggesting exposure to diverse viewpoints.



**Figure 4.** Political Homophily in Following Behavior

**Note:** Panel A and B illustrate the prevalence of political homophily in the following behavior of all PAUTUs who follow at least 25 users with available ideology estimations ( $N = 40,674$ ). Each box represents the 25th, 50th, and 75th percentiles for each metric, while individual points in the background show the specific value for each user. Panel A depicts the total count of users followed based on different types of following decisions, while Panel B displays the percentages of all followed users with ideology estimations. Cross-cutting interactions refer to cases where left-leaning users follow right-leaning users or vice versa and interactions where left/right-leaning users follow moderates. In contrast, in-party interactions occur between users with the same estimated ideology, such as two FA or CM users. Panel C shows the following network of PAUTUs ( $N = 43,922$ ), represented as a directed graph where each node is a user, and each edge indicates a following relationship. The Fruchterman-Reingold algorithm arranged the network, with edges removed for better visualization. Node colors indicate the estimated political orientation of the users.

These findings align with previous research on political interactions on social media. While studies differ on the exact percentages of cross-cutting exposure—whether measured by content engagement (Nyhan et al., 2023) or accounts followed (Barberá, 2014; Eady et al., 2019; Bakshy et al., 2015)—the overarching pattern remains consistent: political homophily is the norm, but users do not live in isolation within echo chambers. These results carry significant implications for the claim that users operate in echo chambers. A central concern of the echo chamber hypothesis is that insular communication spaces cause users to lose awareness of opposing viewpoints (Jungherr et al., 2020). However, our findings challenge that claim. Most users follow at least some cross-cutting accounts and a substantial number of moderate ones. Importantly, these estimates are likely conservative, as users may be further exposed to cross-cutting content through in-party users engaging with opposing views or algorithmic recommendations. Therefore, even politically active users appear to encounter out-party content to some degree, casting doubt on the more alarmist interpretations of the echo chamber hypothesis.

### **User Interactions**

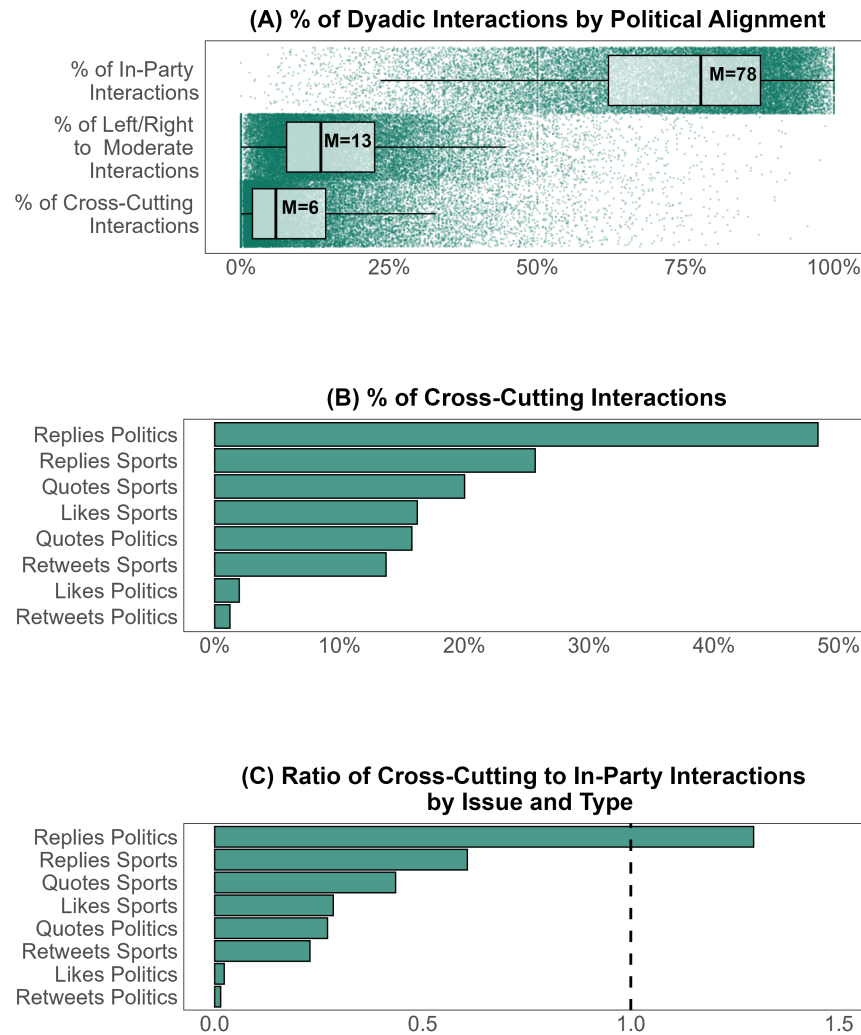
In this section, we analyze patterns of political homophily in users' interactions, focusing on how they engage with others, rather than their following behavior as in the previous section. For each user in our PAUTU sample, we downloaded approximately 200 posts (tweets, retweets, replies, or quotes, specifically, their last 200 posts of any type) and 150 likes. We then categorized these posts as related to politics, sports, or neither. Our approach differs from previous studies on political homophily in social media interactions, which often rely on keyword queries related to specific political issues (Barberá et al., 2015; Conover et al., 2011; Cinelli et al., 2021). Such methods may capture only a small subset of users' posts, potentially introducing bias toward highly politicized content. In contrast, our method ensures a more comprehensive analysis of all user interactions in a period.

Panel A in Figure 5 shows the percentage of dyadic interactions (retweets, likes, replies, and quotes) by the political alignment of the PAUTU user and the original poster when an ideology estimate for the latter is available. As expected, most interactions occur within partisan lines, with a median of 78% being in-party interactions. Political interactions exhibit stronger homophily than following behavior, with a notable portion of users (18%) engaging in at least 90% of their dyadic interactions with co-partisans. Interactions with moderates or cross-cutting users are relatively rare, with a median of 13% and 6%, respectively. However, the vast majority of users (94%) engage with moderates or cross-cutting users at least 5% of the time. This high level of political homophily is unsurprising, given

that these interactions are partly shaped by users' homophilic following patterns (shown in Figure 4) and partly influenced by platform algorithms.

Panels B and C in Figure 5 further illustrate how political homophily in interactions varies by type and issue. We estimate the percentage of cross-cutting interactions and the ratio of cross-cutting to in-party interactions across different interaction types and topics. The extent of cross-cutting interactions varies considerably, ranging from almost nonexistent in retweets of political content to more frequent than in-party interactions when analyzing replies on political issues. This variation aligns with prior research showing that political homophily is particularly strong in political retweets but less so in replies or mentions (Barberá et al., 2015; Conover et al., 2011). Retweets are often interpreted as endorsements, carrying a positive connotation, naturally leading to greater in-group reinforcement.

In contrast, replies have a more open-ended meaning, allowing users to express disagreement or challenge the original content, facilitating more cross-cutting interactions. Similar patterns emerge in the analysis of likes and quotes, two interaction types that are often overlooked. Likes, akin to retweets, carry a positive connotation and exhibit low levels of cross-cutting engagement on political content. In contrast, quotes, like replies, allow users to add commentary, including disagreement. Consequently, quotes show higher levels of cross-cutting interactions, suggesting that interaction types with an open interpretative frame are more likely to foster engagement across partisan lines.



**Figure 5.** Political Homophily Across and Within Interaction Types and Issues

**Note:** Panel A shows the prevalence of political homophily in likes, retweets, replies, and quotes from the 2022 Interactions Data, limited to cases where the original user's ideology (i.e., the author of the interacted-with tweet) is known. Since likes were retrieved through a different query than the other interactions (potentially covering different time spans), we retain only the overlapping period for each user to ensure balanced comparisons. Each boxplot displays the 25th, 50th, and 75th percentiles, with individual user values shown as background points. The analysis includes users with at least 30 interactions and a classified ideology (left or right), totaling 26,630 users (61% of PAUTUs). Cross-cutting interactions are those between left- and right-leaning users. Cross-cutting or to moderates refers to interactions by left/right users with opponents or moderates. In-party interactions occur between users from the same group (FA or CM). Panel B reports the share of cross-cutting interactions within each issue-interaction pair. Panel C shows the ratio of cross-cutting to in-party interactions, with a vertical line at 1 indicating perfect balance.

Furthermore, the topic discussed shapes the extent of cross-partisan interactions, interacting with the type of engagement. We compare political and sports-related interactions to assess how interaction patterns vary across topics. In interactions with a positive connotation (likes and retweets), users are more likely to engage in cross-cutting interactions when the content is sports-related rather than politics-related. Conversely, in interactions with an open or disputed meaning (replies and quotes), users are likelier to engage with out-partisans when discussing politics. This aligns with previous findings by Barberá et al. (2015), who observed that retweets on political topics primarily occurred within like-minded groups. In contrast, interactions on non-political topics, such as sports, displayed lower levels of political homophily.

Figure 6 visualizes user networks based on interaction type and issue among PAUTU users.<sup>3</sup> The networks were created using a force-directed layout algorithm that maximizes the distance between all nodes while minimizing the distance between nodes that have a connection, with nodes representing users and edges representing interactions. For clarity, edges are omitted, and nodes are colored according to our political ideology estimates. These visualizations reinforce the patterns shown in Figure 5. In the political retweets network, left- and right-aligned users form two distinct clusters with minimal cross-partisan interaction. A similar but less pronounced pattern is observed in the network of likes on political content. However, networks based on other interaction types and issues tell a different story. Sports-related retweets and likes (right-hand side of Figure 6) exhibit lower homophily levels, lacking distinct partisan clusters in political content. Instead, users form a more continuous network, though some partisan segregation remains. The bottom four networks, representing replies and quotes, show particularly low levels of political homophily, with a single, heterogeneous cluster for both sports and political interactions. This indicates that users from opposing political groups monitor each other's activity and engage in direct exchanges, particularly through replies.

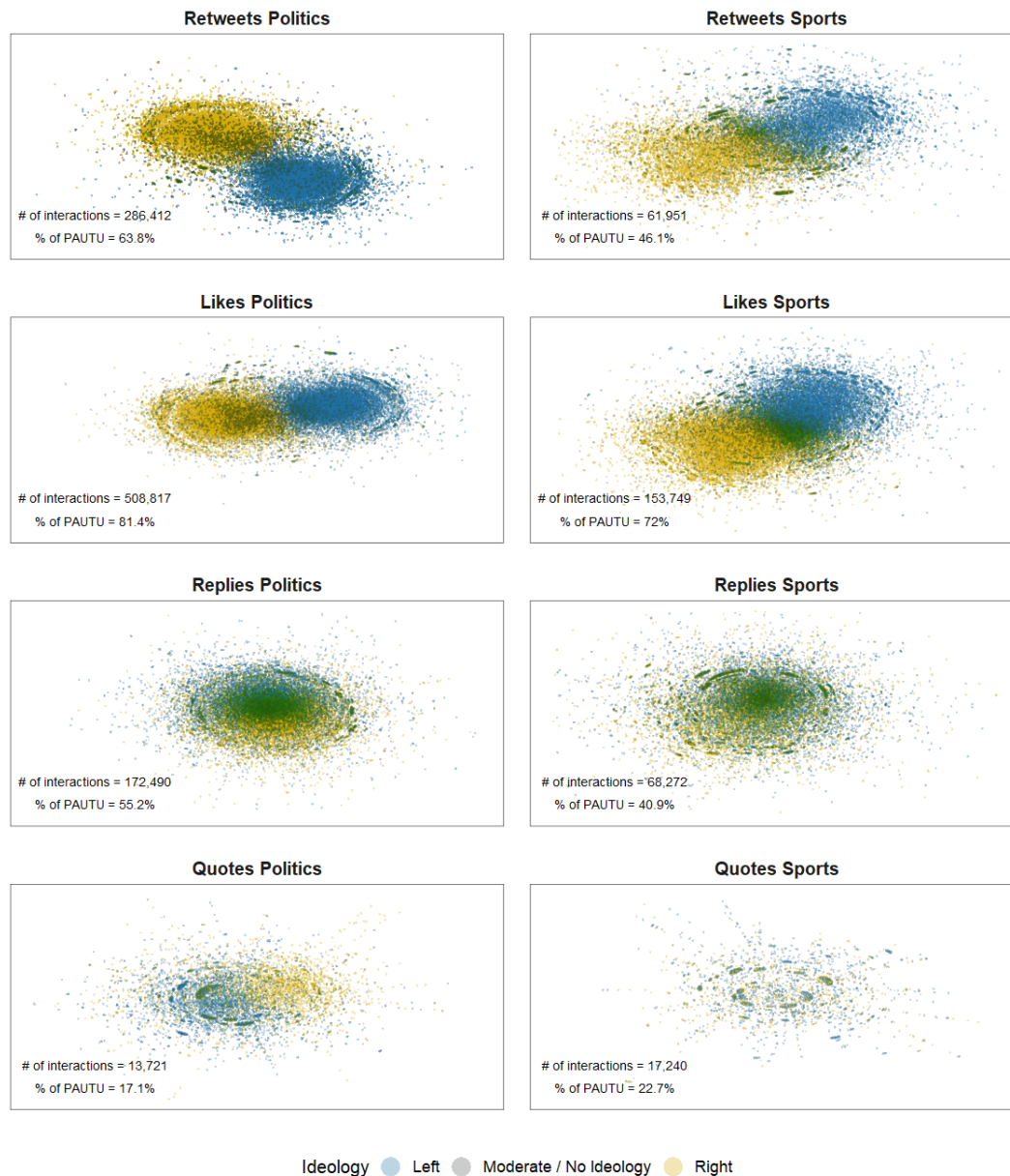
Furthermore, by analyzing all behaviors within the same sample, we can examine whether users who participated in the political retweet network also display greater heterogeneity across other behaviors. Figure A3 in Appendix F illustrates that political homophily in replies and quotes among users involved in the highly clustered retweet network remains low. This finding suggests that the observed patterns are not simply the result of some users residing in echo chambers while others engage in more diverse conversations. These findings challenge the narrative of strong echo chambers, suggesting that cross-partisan interactions occur more frequently than often assumed.

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<sup>3</sup>Figure A2 in the appendix shows a similar network structure, including non-PAUTU users.

Nevertheless, it is crucial to consider the frequency of different interaction types and topics when interpreting these patterns. While replies and quotes exhibit lower levels of political homophily, they account for only 17% and 2% of the total interactions analyzed in Panel A of Figure 5, respectively. In contrast, likes constitute 66% of total interactions, and retweets account for 16%, both of which show stronger partisan alignment. Similarly, political content represents 18% of the total interactions in our dataset, compared to 10% for sports-related content. This implies that the most frequent types of interactions and topics in our sample are those that exhibit greater homophily.

Our findings highlight the importance of considering the distribution of interaction types and topics in social media studies. Analyzing interactions based solely on keywords or hashtags may introduce biases, leading to overestimation or underestimation of political homophily. By incorporating a broader range of interactions and topics with the frequency at which they occur, our approach offers a more comprehensive understanding of how in-group and out-group dynamics manifest on social media.



**Figure 6.** Twitter Interaction Networks by Interaction Type and Issue Only Among PAUTUs

**Note:** The figure shows the interaction networks by interaction type and issue. Networks are directed graphs in which each node is a user, and each edge is an interaction between the users, with weights according to the total number of interactions between each pair of users. The networks were estimated using the force-directed layout algorithm Fruchterman-Reingold, and each node was colored according to its estimated ideology. All interactions described in the Interactions Data section, made by PAUTUs and posted in 2022, were included in this estimation. Both the user who retweets and the user whose post is getting retweeted must be a politically active Uruguayan Twitter User (PAUTU).

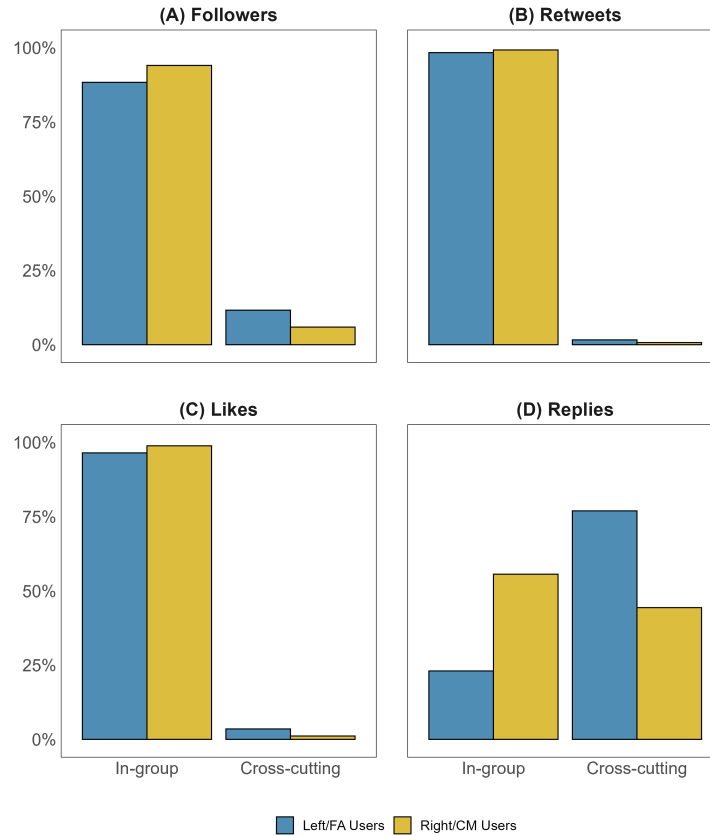
### Interactions with Elites

Our data provides valuable evidence for analyzing social media interactions between users and political elites. For this analysis, we define political elites using the occupational criteria as defined previously (Kertzer and Renshon, 2022). We begin by examining the political homophily in the following behavior of politically active Twitter users towards political elites. To do so, we restrict the complete data of users followed by PAUTUs to whether they followed a curated list of 195 political elite accounts, which includes members of Parliament, state secretaries, governors, and major political party accounts. Previous research focusing on a random sample of Twitter users in the United States shows that most users do not follow political elites (Wojcieszak et al., 2022). However, our study specifically targets politically active users, where 96% of PAUTUs follow at least one elite account from this curated list, and 88% follow at least three accounts. This is expected, as identifying PAUTUs required filtering out users without an ideological estimation, necessitating following at least three elite accounts from an expanded list that included media outlets and civil society organizations.

To conduct our analysis, we classified each PAUTU-to-elite following link as either in-party or cross-cutting.<sup>4</sup> Panel A of Figure 7 shows the results. As expected, there is a high degree of political congruence between the ideology of users and the political elites they follow, with minimal differences between left- and right-leaning users. On average, PAUTUs are ten times more likely to follow an in-party elite than an out-party elite. However, a small percentage of the elites followed are cross-cutting. Among left-leaning users, the percentage of cross-cutting elites followed is 12%, and among right-leaning users, it is 6%. These findings align with those of Eady et al. (2019), who report that at least 5% of the political accounts followed by most Twitter users in the United States belong to the opposite party.

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<sup>4</sup>For this classification, we exclude moderates from the analysis. All political elites are categorized as either left- or right-leaning.



**Figure 7.** Political Homophily in Following Behavior and Interactions with Elites

**Note:** Panel A displays the percentage of elites followed by PAUTUs, distinguishing between cross-cutting (e.g., a left/FA user following a Right/CM user or vice versa) and in-group links. The term “elites” refers to a curated list of 195 political accounts consisting of members of Parliament, state secretaries, governors, and major political party accounts. Panels B and C illustrate the percentage of retweets and likes directed at the same political elite accounts coming from the interactions data described on Appendix B, augmented by data from an extended version of the initial dataset used to identify the PAUTU user list; see Appendix A for further details. The figure summarizes the political congruity of 762,899 following links, 611,435 retweets, 365,658 likes, and 533,293 replies.

We next analyze political homophily in interactions with elites, as shown in Panels B, C, and D. For this analysis, we combined the subset of interactions examined in the previous section—directed at the same list of political elites—with data from one of the two primary sources employed to identify

PAUTUs: retweets and replies to a list of 53 political elites during 2021. By merging these data sources, we obtained a more comprehensive dataset. The evidence is consistent with previous studies. In-group interactions dominate retweets (98% for left-leaning users and 99% for right-leaning users), aligning with findings by Wojcieszak et al. (2022), who report that 91% to 96% of posts retweeted by a random sample of users were from in-party elites. Similarly, likes directed at political elites by PAUTUs display strong homophily, with 97% of likes among left-leaning users and 99% among right-wing users favoring in-party elites.

The structure of replies reveals higher levels of cross-group interaction and distinct patterns between ideological groups (Panel D). Right-leaning users, or those associated with the Multicolor Coalition, exhibit a reply structure similar to Figure 6, with 56% of replies directed at out-party elites and 44% at in-party elites. In contrast, left-leaning users affiliated with the Frente Amplio display a greater propensity for cross-group engagement, with 77% of their replies directed at out-party elites and only 23% at in-party elites. This finding is novel, as we are unaware of previous studies presenting similar data. The high rate of cross-cutting replies among left-leaning users may be attributed to their position as the opposition party, whose followers often criticize government announcements through social media. However, further research into the content of these replies is needed to confirm this explanation.

Our data also suggest that replies to political elites are a common type of interaction, accounting for 47% of all retweets and replies involving political elites. This highlights the value of analyzing different interaction types within the same dataset. While politically active users are highly unlikely to retweet or like content from out-party elites, the reply structure in Panel D indicates that homophily does not entirely prevent exposure to opposing views. Instead, significant levels of cross-group interaction occur through replies. However, these interactions are highly concentrated among hyperactive users. Among the 21,466 individuals who replied to at least one cross-cutting political elite, the average number of such replies is 14, but the median is only 5, with the 95th percentile reaching 59 replies. This distribution suggests that a small group of hyperactive users drives a significant part of the observed engagement with political elites.

### **Media Consumption**

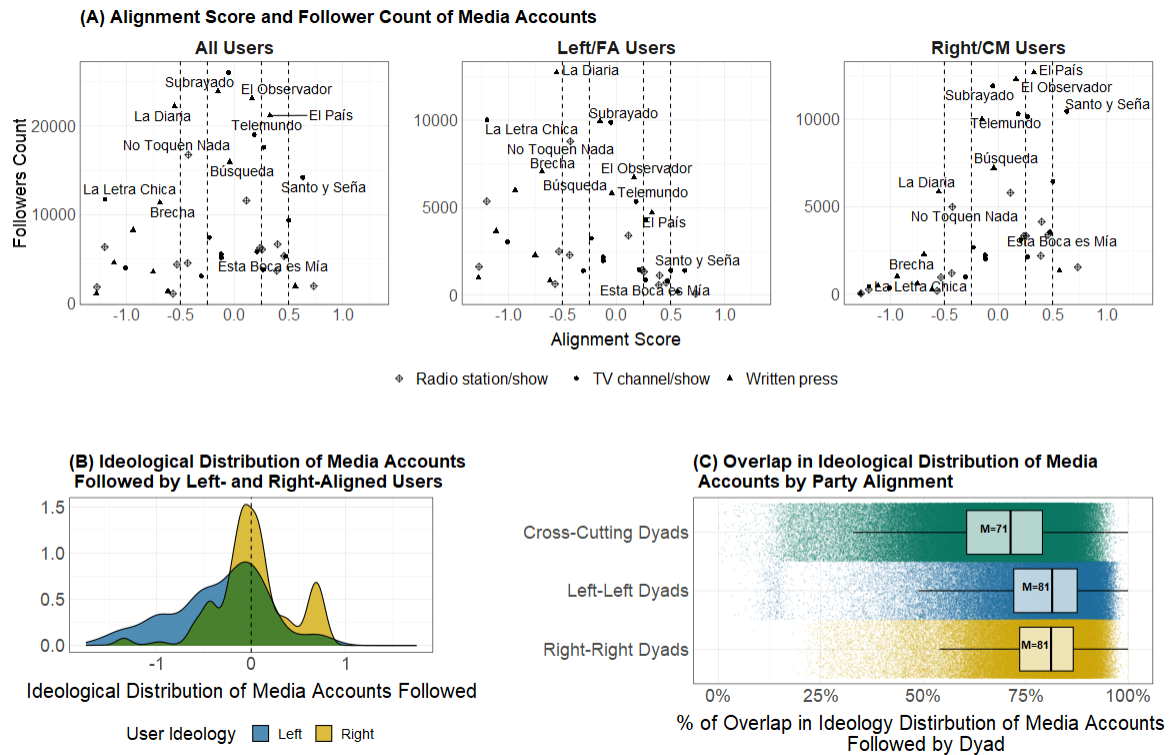
A final dimension of political homophily concerns whether users are embedded in insular media environments. In the broadcast era, media exposure was characterized by relatively few neutral channels.

In contrast, post-broadcast news consumption allows individuals to opt out of politics or select in-party media outlets. The rise of social media has further diversified the information landscape, raising concerns about whether it fosters selective exposure and traps individuals in informational echo chambers. However, previous research suggests that individuals' media diets are generally diverse (Eady et al., 2019; Guess, 2021). These findings may seem at odds with the high levels of homophily observed in political interactions and engagement with elites (Lorenz-Spreen et al., 2023). Little research has analyzed media consumption and social media interactions within the same sample. In this section, we examine the media consumption behaviors of the same sample of politically active users analyzed in previous sections.

To begin, we assess whether the audiences of Uruguay's primary media outlets are segregated along partisan or ideological lines. We compiled a list of 39 popular Uruguayan newspapers, TV programs, and radio stations with active Twitter accounts (see Appendix E for the full list). We calculated an alignment score for each media account, defined as the average estimated ideology of users who follow the account (Bakshy et al., 2015; Guess, 2021). Panel A of Figure 8 presents these alignment scores alongside the total number of followers among PAUTUs and subsets for left- and right-leaning users. The results indicate that Uruguay's mainstream media outlets attract followers from both ideological camps. For example, prominent news programs like Subrayado, Telemundo, Telenoche, and major newspapers like El Observador and Búsqueda are followed relatively evenly by left- and right-leaning users. For instance, 60% of left-leaning PAUTUs follow Subrayado, compared to 65% of right-leaning PAUTUs. However, some outlets display a clear partisan skew. The left-leaning newspaper La Diaria is followed by 77% of left-leaning PAUTUs but only 32% of right-leaning users. Conversely, the right-leaning TV program Santo y Señá is followed by 57% of right-leaning PAUTUs but only 9% of left-leaning users. Additionally, certain outlets are highly polarizing. For example, 60% of left-leaning users follow La Letra Chica, a TV program, while only 2% of right-leaning users do.

One advantage of estimating user ideology based on following patterns is that it enables mapping users, elites, and media accounts along the same ideological spectrum (Barberá, 2015). Building on this, we analyzed the overlap in the ideological distributions of media accounts followed by left- and right-leaning PAUTUs. Although these ideology estimations strongly correlate with the alignment scores in Panel A of Figure 8, they draw on a broader and more diverse dataset of following behavior. Panel B of Figure 8 illustrates significant overlap in the ideological distributions of media outlets followed by both groups. We quantified this overlap using the measure employed by Guess (2021) and Lelkes (2016),

finding a 62% overlap between the two distributions.



**Figure 8.** Political Homophily in Media Following

**Note:** Panel A illustrates the alignment scores of 39 media accounts and the number of PAUTUs who follow each. These accounts include major TV and radio channels, shows, written press outlets, and popular journalists. A full list can be found in Table A10 in Appendix E. Alignment scores represent the average ideology of PAUTUs who follow each account. Follower counts are shown for all users and left-leaning and right-leaning users, with alignment scores always calculated for all users. Panel B depicts the ideological distribution of media accounts followed by left-leaning and right-leaning users. The ideology estimation of media outlets is derived from the same estimation used for PAUTUs, as all outlets were included among the 314 elites used in that process. Panel C presents the overlap in the ideological distribution of media accounts followed by dyads of users with differing political alignments. A random sample of 1,000 PAUTUs was selected, generating 479,710 dyads. The overlap measure, derived from (Lelkes, 2016) and (Guess, 2021), quantifies the similarity in ideological distributions of the media accounts followed by each dyad.

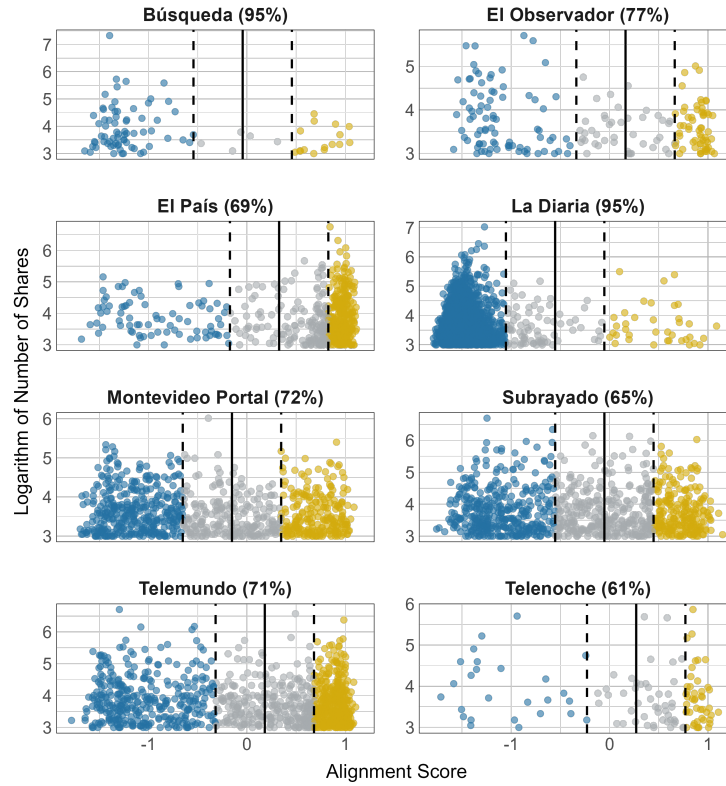
To gain a more granular perspective, we adopted the approach of Eady et al. (2019), analyzing overlap in the ideological distributions of media accounts followed by user dyads grouped by party alignment. Panel C in Figure 8 displays the results. Overall, the overlap is substantial. Among both

left and right-leaning dyads, the median overlap is 81%. Even cross-cutting dyads show considerable overlap, with a median of 71%, and 95% of such dyads exhibiting at least 45% overlap. These findings align with prior research, which reported a 51% overlap in the ideological distributions of media accounts, followed by the most liberal and conservative quintiles of U.S. Twitter users (Eady et al., 2019). The higher overlap observed in our results may be partly attributed to Uruguay's relatively small and neutral media landscape. The country's internally pluralistic media outlets offer fewer opportunities for individuals to self-select into ideologically homogeneous media environments (Schuliaquer and Cesar, 2024). This characteristic highlights the distinct dynamics of media consumption in Uruguay, where a small group of mainstream media outlets tend to be popular across left and right-leaning users, more so than in polarized media markets.

Our findings suggest a substantive overlap in the media accounts followed by most PAUTUs. While this evidence contradicts the notion of echo chambers, domain-level analyses may underestimate political homophily in media consumption (Green et al., 2025). This occurs through a two-stage process where users who share a high news volume selectively curate and disseminate stories that reinforce their political identities. These "curation bubbles" emerge at the story level, meaning domain-level analysis might miss additional layers of homophily (Green et al., 2025). To investigate whether this phenomenon also occurs outside the US context, we also analyze the political alignment of news shared by PAUTUs and compare it to outlet-level scores. Our analysis relies on two data sources. First, we collected all retweets, replies, and quote tweets of posts from eight mainstream Uruguayan media outlets between March 2021 and May 2022.<sup>5</sup> Second, we examine PAUTU interactions with these outlets from the interaction dataset analyzed in previous sections.

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<sup>5</sup>The media outlets analyzed include newspapers or digital news sites El País, El Observador, La Diaria, Montevideo Portal, and Búsqueda as well as news programs Subrayado, Telenoche, and Telemundo.



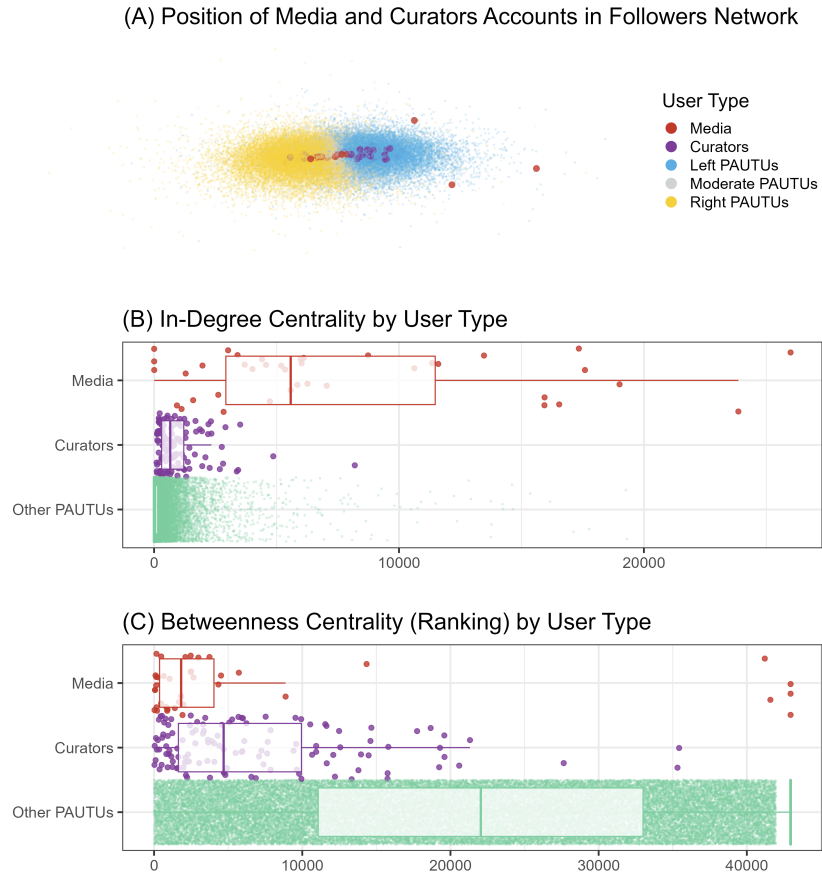
**Figure 9.** Post-Level Alignment Scores Across Mainstream Media Outlets

***Note:** This figure presents the post-level alignment scores for 5,005 posts with at least 30 retweets or quotes in our dataset, made by a subset of eight mainstream media outlets. Alignment scores are calculated as the average ideological position of PAUTUs who retweeted or quoted each post. The percentages indicate the proportion of posts with alignment scores falling within each outlet's substantive significance range ( $\pm 0.5$ ).*

Following the methodology of Green et al. (2025), we assess whether story-level alignment scores deviate from outlet-level scores. We define a range of substantive significance around the alignment score of each media outlet ( $\pm 0.5$ ), equivalent to the difference between La Diaria and Búsqueda. Stories falling outside this range are considered evidence of curation bubbles. Our findings strongly support the existence of such bubbles: while media outlets generally display moderate alignment scores, individual stories often exhibit stronger biases. The proportion of stories outside the substantive significance range varies from 61% for Telemundo to 95% for La Diaria and Búsqueda. This pattern persists

when retweets and quote tweets are analyzed separately, as shown in Figure A4 in Appendix F. These findings suggest that although media-following behavior demonstrates moderate to low political homophily at the outlet level, selective sharing by partisans amplifies ideological biases at the story level.

To better understand this phenomenon, we examine users' centrality in the highest volume of selective sharing. Specifically, we identified 173 high-activity curators, defined as users who shared over 200 media posts in our dataset. Among them, we analyzed the subset of 125 users who shared posts with an average news-level slant greater than 0.5 or less than -0.5. We then analyzed their role in the follower network described previously. To do so, we reconstructed the follower network among PAUTUs as in Figure 4, adding media accounts and highlighting high-activity curators in purple, as shown in Figure 10. A visual inspection reveals that, as expected, media accounts occupy central positions in the network. However, curators are central within the left- and right-leaning clusters. To quantify this, Panels B and C display key centrality measures by user type: in-degree centrality and betweenness centrality rankings. In-degree centrality, which counts the number of PAUTUs following an account, confirms that media accounts are the most popular on average. However, prolific curators exhibit significantly higher follower counts than median users. For instance, while the median PAUTU has 38 PAUTU followers, the median high-activity curator is followed by 658 PAUTUs, with some curators approaching the popularity levels of major media accounts. Betweenness centrality, which measures how often a node lies on the shortest path between others, provides a proxy for influence in information flow (Borgatti et al., 2022). Due to its skewed distribution, we report user rankings in Panel C of Figure 10. The results indicate a similar trend: although less influential than media accounts, curators are considerably more central than other PAUTUs. These findings, to the best of our knowledge, offer the first detailed description of the influence exerted by users who selectively share political information in the dissemination of news.



**Figure 10.** Network Centrality of Curators and Media Accounts

**Note:** Panel A displays the follower network of PAUTUs, including curators and media accounts, constructed using the same methodology as the follower network shown in Figure 4. Panels B and C present centrality measures derived from the network in Panel A. Specifically, Panel B illustrates the distribution of in-degree centrality. At the same time, Panel C shows the rankings of betweenness centrality. These measures are reported separately for media accounts, curators (defined as the 125 users who shared over 200 news items in our dataset with an average slant exceeding 0.5 or below -0.5), and the remaining PAUTUs.

## **Discussion**

### **Content Exposure and Following Behavior**

Our findings show that politically active users in Uruguay exhibit strong homophily in their following behavior. Most users predominantly follow co-partisan accounts, with a median of 65% of follows being ideologically aligned. However, in line with previous research, very few users exist in complete ideological echo chambers: most still follow a moderate number of out-party and moderate accounts.

### **Interactions with Other Users**

Political homophily also manifests strongly in interaction behaviors, particularly in retweets and likes, which typically indicate positive engagement and endorsement. A median of 78% of political interactions are in-party, and 18% of users interact almost exclusively (over 90% of interactions) with co-partisans. Yet, variation across interaction types is notable: replies and quotes, which allow for disagreement or commentary, show greater cross-cutting engagement. For example, replies on political topics often involve direct interactions with out-party users, suggesting the prevalence of some cross-ideological contact. Additionally, interactions differ by topic. Sports-related content, for instance, shows more ideologically mixed engagement compared to political topics.

This analysis contributes two new insights to the literature. First, while corroborating the finding that retweet interactions exhibit higher political homophily than replies (Conover et al., 2011; Barberá et al., 2015), we extend the scope of analysis to include likes (Twitter's most common form of engagement), which, to our knowledge, has not been systematically examined. Notably, likes display a high degree of political homophily, comparable to retweets and in contrast to replies and quote tweets. Second, our approach allows us to assess homophily across all user-generated content within a defined time period. This stands in contrast to studies relying on keyword-based samples of specific interaction types, which may capture, for instance, disproportionately politically salient content. Our findings indicate that, despite variation by interaction type and topic, user activity over a given timeframe remains highly homophilous.

### **Engagement with Political Elites**

Interactions with political elites reveal the highest levels of homophily. Retweets and likes directed at elites are overwhelmingly in-group: 97–99% for both likes and retweets. We also examine replies to political elites, a behavior often overlooked in prior research that display a starkly different pattern. For instance, left-leaning users in particular reply to out-party elites far more frequently (77%) than to their own. This behavior likely reflects their role as the opposition during the study period. These replies represent a major channel to express disagreement with political elites, although they are driven disproportionately by a small group of hyperactive users. This heterogeneity underscores the need to consider frequency and user concentration when assessing engagement patterns.

### **Media Consumption and Curation Bubbles**

Contrary to fears of ideologically isolated media diets, our data shows substantial overlap in the media followed by left- and right-leaning users. Alignment scores for Uruguay’s main media outlets indicate that many are followed by both groups, with a 62% overlap in ideological distribution of followed outlets. Even cross-cutting dyads share 71% overlap in the ideological distribution of media they follow, a much higher degree than reported in United States-based studies.

However, this domain-level balance conceals deeper story-level polarization. As shown through the replication of “curation bubbles” (Green et al., 2025), users selectively share news stories aligned with their political leanings. Even when users follow the same outlets, they amplify different stories. Furthermore, using our follower data, we examined the role of 195 high-activity “curators” in information diffusion. Our analysis shows that these curators occupy central positions in the follower network and thus play a significant role in shaping partisan information exposure. Though media diets may appear balanced, content curation by influential users introduces ideological skew into the information ecosystem.

### **Conclusion**

One of the central efforts in the study of digital and social media in politics has been to examine the homophily of online interactions and content exposure, or to what extent these platforms function as echo chambers. Research in this area has produced mixed results, even described as “paradoxical” (Lorenz-Spreen et al., 2023). A previously untested explanation for these inconsistencies stems from differences

in how homophily is measured and the dimensions of behavior studied. We contribute to this literature by analyzing four key dimensions of social media behavior within the same sample: following behavior, all users' interactions, and relationships with elites and media. Our findings broadly align with previous studies, revealing that political homophily varies significantly depending on the behavior examined. Retweeting and liking political content or elite accounts, as well as following political elites, exhibit the highest levels of political homophily. In contrast, following behavior, replies, and quote tweets on political content, and interactions with non-political content show lower levels of homophily. Additionally, our results on media consumption confirm significant overlap in the ideological distribution of media accounts followed, alongside a strong presence of curation bubbles. These findings reconcile seemingly paradoxical results, demonstrating how different dimensions of behavior can coexist within the same user base.

This study contributes to the literature in two key additional ways. First, it extends research beyond the typical focus on the U.S. and Western European contexts by analyzing political interactions in Uruguay, a developing country with unique features. Despite its regional context, Uruguay stands out as the most politically stable country in Latin America, with a strong democratic tradition and high levels of party institutionalization, offering valuable insights for comparative research. Furthermore, our results show that high levels of political homophily in social media are possible even in contexts with low affective polarization like Uruguay.

Second, this study employs a user-focused approach, analyzing a near-census of politically active Twitter users in Uruguay responsible for generating much of the country's political content on the platform. This is particularly important because politically active users shape public perceptions of ideological extremity and polarization (Wojcieszak et al., 2022), making their behavior crucial for understanding the dynamics of social media and politics.

Overall, our findings suggest that politically active Twitter users exhibit strong political biases in their behavior, with variation across interaction types but high homophily when all interactions are considered. However, the overall patterns do not align with the most pessimistic accounts, such as Sunstein's claim that individuals in echo chambers "lose sight" of opposing perspectives (Sunstein, 2018). Most users engage with or are exposed to some cross-cutting content, which challenges the echo chamber hypothesis. This finding is important because echo chambers are often considered major political polarization drivers. However, while most users do not appear to inhabit echo chambers, social

media may still contribute to polarization. Research has shown that exposure to cross-cutting content can, in certain contexts, amplify polarization (Bail et al., 2018). This suggests that even without strict echo chambers, social media may still foster polarization by offering a distorted view of the political landscape, as the most engaged users tend to be more polarized (González-Bailón and Lelkes, 2023).

Furthermore, our study has limitations that future research could address. One such limitation is the narrow focus on a single social media platform—X—which is not the most widely used platform globally. Future studies should aim to provide a more comprehensive understanding of the media environments in which individuals are embedded by examining behavior and exposure across both online and offline channels (Hartmann et al., 2025). This is especially important given the rise of new social media platforms with more consistently partisan user bases, such as Truth Social among conservatives and Bluesky among liberals in the United States (Quelle and Bovet, 2025). Although this platform-based ideological segregation remains mostly localized and has not extended to contexts like Uruguay, developments in the U.S. point to a possible future in which multiple ideologically homogeneous platforms coexist. If such fragmentation becomes more widespread, the echo chamber hypothesis may regain relevance.

Another limitation of our study is that, while we assess whether individuals are exposed to, follow, or interact with cross-cutting users, elites, and media outlets, we do not examine the nature of the content that circulates across ideological divides. A promising avenue for future research would involve characterizing cross-cutting interactions in greater detail. For example, identifying the topics discussed and analyzing the tone of exchanges, including the frequency of incivility, toxicity, or civic dialogue. A deeper understanding of the content and tone of cross-cutting interactions would offer valuable insight into the nature of political exchanges across political lines, beyond solely focusing on the balance of in-party versus out-party exposure.

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## Supplementary Information to: A Multidimensional Analysis of Political Homophily Among Politically Active Twitter Users in Uruguay

### Contents

|          |                                                                                 |           |
|----------|---------------------------------------------------------------------------------|-----------|
| <b>A</b> | <b>Estimation of Uruguayan Political Active Twitter Users (PAUTUs)</b>          | <b>2</b>  |
| A.1      | Data Collection: Interactions with Uruguayan Political Elites in 2021 . . . . . | 2         |
| A.2      | Data Collection: Uruguay's Political Issues in 2021 . . . . .                   | 4         |
| A.3      | Final Data Description . . . . .                                                | 8         |
| <b>B</b> | <b>Interactions Data Collection</b>                                             | <b>10</b> |
| B.1      | Likes . . . . .                                                                 | 10        |
| B.2      | Timelines . . . . .                                                             | 10        |
| B.3      | Followers . . . . .                                                             | 11        |
| <b>C</b> | <b>Ideology Estimation and Validation</b>                                       | <b>12</b> |
| C.1      | Estimation . . . . .                                                            | 12        |
| C.2      | Validation . . . . .                                                            | 14        |
| C.2.1    | Manual Validation . . . . .                                                     | 14        |
| <b>D</b> | <b>Topic Classification</b>                                                     | <b>15</b> |
| <b>E</b> | <b>Media Accounts</b>                                                           | <b>19</b> |
| <b>F</b> | <b>Additional Figures</b>                                                       | <b>20</b> |

## Appendix A: Estimation of Uruguayan Political Active Twitter Users (PAUTUs)

The study relies on two primary data sources to identify politically active Uruguayan Twitter accounts: (1) interactions with a set of political elites throughout 2021 and (2) interactions related to 47 local political issues during the same period. This section outlines the data collection and filtering procedures.

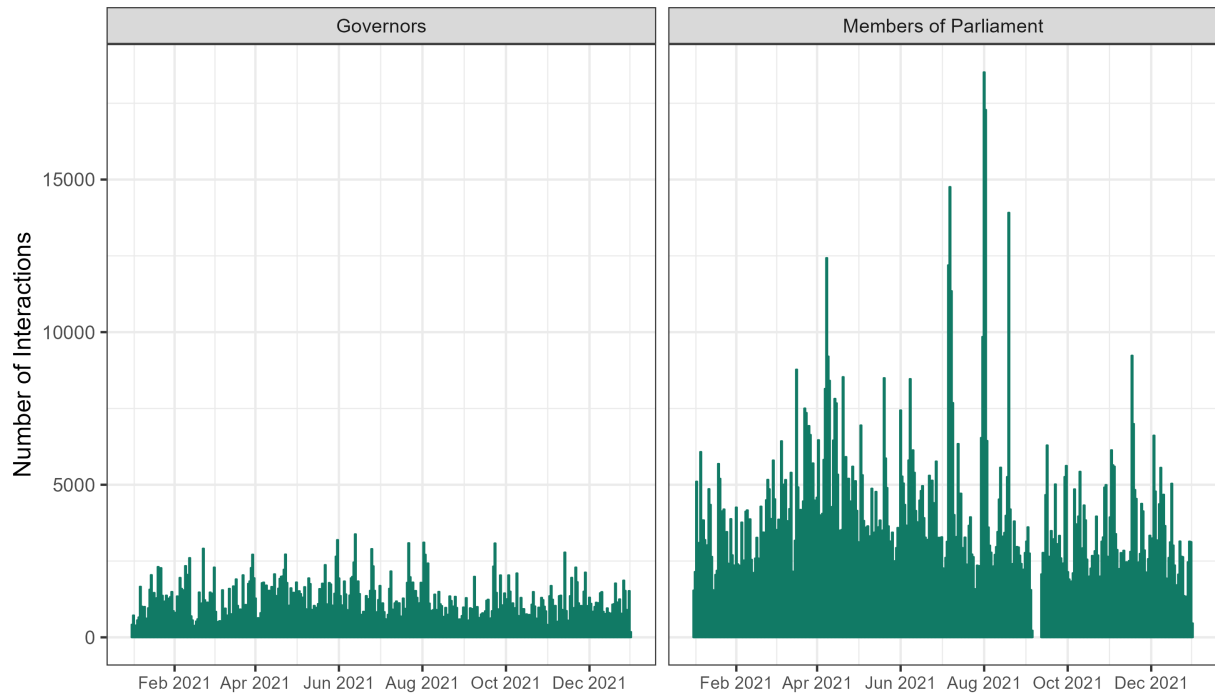
### A.1 Data Collection: Interactions with Uruguayan Political Elites in 2021

For the elite interactions, we used the Twitter API to download all tweets that contained the handle of all 'Intendentes' (Majors of Uruguay's Departments) and all 'Senadores' (members of the Uruguayan Upper Legislative Chamber) who had a Twitter account in 2021. 15 out of 19 governors and 29 out of 30 MPs had an active Twitter account. Table A1 shows the complete list of accounts included. The Twitter API retrieved all retweets, quotes, and replies to the users' original posts, as well as user-authored tweets that tag that specific account during a specific period (around ten days). The query was designed so the downloading procedure would be repeated twice weekly to minimize the risk of missing interactions.

**Table A1:** Political Elites Accounts

| Members of Parliament |                 |                 |                 |
|-----------------------|-----------------|-----------------|-----------------|
| ANiffouri             | beatrizargimon  | camboue         | Carmensangui    |
| casiain1              | cdcamy          | ChCarreraLeal   | DanielOlesker   |
| DomenechMG            | EnriqueRubio_FA | gbianchi404     | germancoutinho  |
| gloriasaravista       | GuidoManiniRios | GustavoPenades  | JMaSanguinetti  |
| jorgegandini          | JoseCarlosMahia | JuanSartoriUY   | lanzadib        |
| likechichian          | Mario_Bergara   | Oandradelallana | pachasanchez    |
| raul_lozanob          | sandralazo2     | sergiobotana    | silvianane      |
| Tabareviera           | TopolanskyLucia |                 |                 |
| Governors             |                 |                 |                 |
| ABentaberri           | alejoumpierrez  | AndresLimaSalto | Antia_Enrique   |
| besozzi_guille        | CarmeloVidalin  | CosseCarolina   | DipGarciaMario  |
| Dipmariosilvera       | DipOlivera      | g_lopezmendez   | jose_yurramendi |
| Lista5050             | OrsiYamandu     | tufilafluf      |                 |

To collect elite interactions, we used the Twitter API to retrieve all tweets mentioning the accounts of Uruguay's Intendentes (department governors) and Senadores (members of the Upper Legislative Chamber) who had an active Twitter presence in 2021. Among them, 15 out of 19 governors and 29 out of 30 senators had active accounts. Table A1 provides a full list of included accounts. The Twitter API retrieved all retweets, quotes, and replies to posts from these elites, as well as user-authored tweets that tagged these accounts within a given time frame (approximately ten days). To minimize the risk of missing interactions, we scheduled the data collection process to run twice weekly.



**Figure A1.** Daily Number of Interactions with Political Elites

***Note:** Number of daily interactions with political elites, categorized by whether they were directed at governors or members of parliament. Interactions involving both groups were excluded.*

From January 1 to December 31, 2021, a total of 93,339 users engaged in 2,119,915 interactions with these political elites. Figure A1 presents the distribution of interactions by day and elite type. Due to a technical issue, data on MPs was not collected for a seven-day period

during the year.

## A.2 Data Collection: Uruguay's Political Issues in 2021

In 2021, we tracked 47 political issues to identify PAUTUs. These issues included interactions related to the campaign for the 2022 referendum on the Ley de Urgente Consideración (LUC) proposed by the Partido Nacional, popular political hashtags, debates on the government's handling of the COVID-19 crisis, discussions surrounding political protests and demonstrations, and the dismissal, resignation, or passing of key political figures. Table A2 provides a detailed overview of all issues included in the final dataset. Interactions were collected using the Twitter API, filtering tweets based on keywords relevant to each issue (see Table A3). After retrieving all interactions containing these keywords, we applied social network analysis to extract the largest connected component, manually verifying its relevance to Uruguayan politics through user names and content analysis. To expand the dataset, we then downloaded all replies to interactions within this verified network. As a result, the final dataset for each issue includes both original interactions matching the keywords and replies to those interactions, ensuring a more comprehensive representation of political discussions.

**Table A2: Issue Description**

| #  | Description                                                                                             |
|----|---------------------------------------------------------------------------------------------------------|
| 1  | Journalist Aldo Silva suggests that President should announce the daily number of COVID-19 deaths.      |
| 2  | Calls for head of the Office of Planning and Budget Isaac Alfie to resign over tax exemption issue      |
| 3  | TV show evidences that Frente Amplio MP Oscar Andrade did not pay property taxes                        |
| 4  | Interpellation to Minister of Industry Omar Paganini because of Antel Arena Stadium construction cost   |
| 5  | Interpellation to the Minister of Economy Azucena Arbeleche                                             |
| 6  | Dismissal of the Minister of Social Development Pablo Bartol                                            |
| 7  | Popular hashtag among Frente Amplio supporters                                                          |
| 8  | Carnival group (murga) song that mentioned deceased Minister of Internal Affairs Jorge Larrañaga        |
| 9  | Hashtag against public spending on city TV channel of the city of Montevideo                            |
| 10 | Host of State TV show took legal actions against chanel director                                        |
| 11 | Hashtag related to the absence of Lacalle Pou in the media during the COVID-19 peak in early April 2021 |
| 12 | City Major sexual harassment scandal                                                                    |
| 13 | National Administration of Public Education (ANEP) Elections                                            |
| 14 | Social Security Bank (BPS) election                                                                     |
| 15 | President of Frente Amplio Election                                                                     |
| 16 | Proposal of Fernando Pereira (union leader) to be President of Frente Amplio                            |
| 17 | 13 people died from COVID-19 in nursing home in Fray Bentos                                             |
| 18 | Discussion about Honorary Scientific Advisory Group (GACH) because of COVID-19 pandemic                 |

Table A2 continued from previous page

| #  | Description                                                                                                                                            |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19 | End of activity of the COVID-19 Honorary Scientific Advisory Group (GACH)                                                                              |
| 20 | Discrepancy between GACH and President Lacalle Pou on measures related to COVID-19                                                                     |
| 21 | Government studies removing subsidy for cooking gas                                                                                                    |
| 22 | Demise of José Gavazzo (torturer in the military dictatorship)                                                                                         |
| 23 | Alleged corruption case regarding Tourism Minister German Cardoso                                                                                      |
| 24 | Death of former Vice-President Gonzalo Aguirre                                                                                                         |
| 25 | Interpellation of Internal Affairs Ministry Luis Heber interrogated for prison escape                                                                  |
| 26 | Interpellation to Minister of Transportation Luis Heber because of port concession                                                                     |
| 27 | President Lacalle Pou barbecue with football organization CONMEBOL leaders during COVID-19 crisis                                                      |
| 28 | President Lacalle Pou spends Christmas with soldiers in Democratic Republic of the Congo                                                               |
| 29 | Demise of Internal Affairs Minister Jorge Larrañaga                                                                                                    |
| 30 | Referendum to derogate Urgent Consideration Law (LUC) Campaign                                                                                         |
| 31 | Successful Signature Collection to derogate the Urgent Consideration Law (LUC)                                                                         |
| 32 | Pride Parade 2021 (Marcha de la Diversidad)                                                                                                            |
| 33 | Hashtags related to the March of Silence, demanding justice for missing people during the military dictatorship                                        |
| 34 | Dismissal of Frente Amplio Political Secretary Rafael Michelini due to calls to gather amidst COVID-19 crisis                                          |
| 35 | Radio show evidence irregularities of the NGO Nada Crece a la Sombra                                                                                   |
| 36 | General strike September 21, 2021                                                                                                                      |
| 37 | Dismissal of the director of the news show Subrayado, Eduardo Preve, allegedly by request of the government                                            |
| 38 | Resignation of the Minister of Tourism Germán Cardoso                                                                                                  |
| 39 | Minister of Health Daniel Salinas said he had voted in favor of the civil-military dictatorship in 1980 referendum                                     |
| 40 | Hashtag against the measures proposed by the Sindicato Medico del Uruguay (Physicians Union) in the face of possible hospital saturation               |
| 41 | The Minister of Education Pablo da Silveira takes the temperature at the entrance of state theater due to the employee strike                          |
| 42 | Start of negotiation of Free Trade Agreement with China                                                                                                |
| 43 | Discussion between the Senator Sebastian da Silva and the former president of the Sindicato Medico del Uruguay (Physicians Union) Julio Trostchansky   |
| 44 | Hashtag criticizing the first year of Lacalle Pou's government #unañooparaelolvido                                                                     |
| 45 | COVID-19 vaccination Government's campaign Hashtag                                                                                                     |
| 46 | Hashtag related to a possible exit of Uruguay from MERCOSUR after discussion between Argentina's President Alberto Fernandez and President Lacalle Pou |
| 47 | Protest (cacerolazo) in demand of measures to stop COVID-19 cases                                                                                      |

The selection of issues was informed by political coverage in traditional media and content posted by Uruguay's main political figures on Twitter. While this dataset does not capture all non-elite political interactions, it constitutes a comprehensive record of major political discussions in Uruguay during 2021. In total, 88,537 unique users engaged in 1,190,353 inter-

actions related to these issues. Table A4 presents a breakdown of interactions by issue and interaction type.

**Table A3: Query Keywords by Issue**

| #  | keywords                                                                                                       |
|----|----------------------------------------------------------------------------------------------------------------|
| 1  | aldo silva                                                                                                     |
| 2  | alfie                                                                                                          |
| 3  | Oandradelallana; santo y sena; santotv4; nacho alvarez OR igoalvar71                                           |
| 4  | antel                                                                                                          |
| 5  | arbeleche; alfie                                                                                               |
| 6  | bartol; pbartol65                                                                                              |
| 7  | #cadenadezurdos                                                                                                |
| 8  | cayo cabra; larrañaga                                                                                          |
| 9  | #conmiplatano                                                                                                  |
| 10 | Denisse Legrand; ouicoucou; @laetrachicav; @TVCIUDADuy; tv ciudad ;Alejandra Casablanca; NegraCasablanca       |
| 11 | #dondeestaelpresidente                                                                                         |
| 12 | edil                                                                                                           |
| 13 | anep; fenapes; robert silva                                                                                    |
| 14 | bps; eleccionesbps                                                                                             |
| 15 | Frente_Amplio; frente amplio                                                                                   |
| 16 | fernando pereira; pit cnt; frente amplio                                                                       |
| 17 | fray bentos                                                                                                    |
| 18 | gach                                                                                                           |
| 19 | gach                                                                                                           |
| 20 | gach; lacalle                                                                                                  |
| 21 | alfie; supergas and subsidio; garrafa; Alfelsaac                                                               |
| 22 | gavazzo                                                                                                        |
| 23 | CardosoGerman; german cardoso                                                                                  |
| 24 | gonzalo aguirre                                                                                                |
| 25 | heber                                                                                                          |
| 26 | katoen natie; puerto montevideo; heber; luisaheber; argmion; beatrizargimon; elpuertonoseentrega;interpelacion |
| 27 | lacalle asado                                                                                                  |
| 28 | lacalle congo                                                                                                  |
| 29 | larrañaga; #hayordendenoaflojar                                                                                |
| 30 | luc; VotaSiUy; #VotaSi; UyNOderoga; #UruguayNoDeroga                                                           |
| 31 | YoFirmo; habrareferendum                                                                                       |
| 32 | marcha diversidad; MarchaDeLaDiversidad2021                                                                    |
| 33 | marchadelsilencio; marchadelsilencio2021; donde estan; memoria verdad y justicia                               |
| 34 | micelini                                                                                                       |
| 35 | denisse legrand; nada crece; Asinosva850; ouicoucou; PatriciaJMadrid; ViviRuggiero                             |
| 36 | paro general; pit cnt                                                                                          |
| 37 | preve; canal 10; subrayado; canal10uruguay; EPreve                                                             |

Table A3 continued from previous page

| #  | keywords                                                                                                     |
|----|--------------------------------------------------------------------------------------------------------------|
| 38 | cardoso                                                                                                      |
| 39 | daniel salinas; DrDanielSalinas                                                                              |
| 40 | #sindicatodelmiedo                                                                                           |
| 41 | sodre; pablo da silveira; pdasilve                                                                           |
| 42 | tlc china; uruguay china; tratado de libre comercio china; lacalle china;<br>acuerdo comercial china uruguay |
| 43 | Trostchansky; camboue; sebastian da silva; Jtrostchansky                                                     |
| 44 | #unaño para el olvido                                                                                        |
| 45 | #uruguaysevacuna                                                                                             |
| 46 | #URUEXIT                                                                                                     |
| 47 | #uruguaycacerolea                                                                                            |

Table A4: Interaction Metrics by Issue

| #  | Total interactions | Retweets | User-Authored Tweets | Replies or Quotes | Unique Users | Period                  |
|----|--------------------|----------|----------------------|-------------------|--------------|-------------------------|
| 1  | 27334              | 17589    | 513                  | 9232              | 8294         | 2021-04-13 - 2021-04-21 |
| 2  | 32674              | 21156    | 946                  | 10572             | 8900         | 2021-03-04 - 2021-03-12 |
| 3  | 53459              | 34099    | 1061                 | 18299             | 13319        | 2021-07-31 - 2021-08-08 |
| 4  | 46685              | 33168    | 1055                 | 12462             | 10543        | 2021-11-10 - 2021-11-19 |
| 5  | 33282              | 23632    | 974                  | 8676              | 9379         | 2021-05-17 - 2021-05-24 |
| 6  | 20096              | 11499    | 574                  | 8023              | 7941         | 2021-04-27 - 2021-05-05 |
| 7  | 38766              | 25680    | 1624                 | 11462             | 5586         | 2021-08-22 - 2021-08-31 |
| 8  | 17203              | 11764    | 478                  | 4961              | 5718         | 2021-11-06 - 2021-11-15 |
| 9  | 10868              | 8709     | 377                  | 1782              | 2656         | 2021-05-04 - 2021-05-08 |
| 10 | 4390               | 2906     | 151                  | 1333              | 2088         | 2021-07-13 - 2021-07-21 |
| 11 | 11384              | 8388     | 438                  | 2558              | 3515         | 2021-03-28 - 2021-04-06 |
| 12 | 5817               | 3771     | 247                  | 1799              | 2923         | 2021-10-19 - 2021-10-29 |
| 13 | 7598               | 5427     | 300                  | 1871              | 3440         | 2021-10-24 - 2021-11-01 |
| 14 | 26548              | 19005    | 1328                 | 6215              | 8486         | 2021-11-21 - 2021-11-30 |
| 15 | 20679              | 14520    | 955                  | 5204              | 6316         | 2021-12-05 - 2021-12-14 |
| 16 | 12835              | 7912     | 380                  | 4543              | 5128         | 2021-08-21 - 2021-08-30 |
| 17 | 13392              | 8540     | 507                  | 4345              | 5740         | 2021-03-31 - 2021-04-08 |
| 18 | 10791              | 7875     | 359                  | 2557              | 4450         | 2021-04-24 - 2021-05-02 |
| 19 | 18177              | 12249    | 769                  | 5159              | 7494         | 2021-06-13 - 2021-06-22 |
| 20 | 43320              | 29568    | 1468                 | 12284             | 13291        | 2021-05-30 - 2021-06-07 |
| 21 | 13636              | 8854     | 448                  | 4334              | 5924         | 2021-07-21 - 2021-07-29 |
| 22 | 22667              | 16609    | 638                  | 5420              | 10754        | 2021-06-23 - 2021-06-30 |
| 23 | 4775               | 3098     | 215                  | 1462              | 2616         | 2021-06-13 - 2021-06-21 |
| 24 | 10998              | 7922     | 471                  | 2605              | 4134         | 2021-04-27 - 2021-04-30 |
| 25 | 21513              | 13932    | 730                  | 6851              | 6835         | 2021-09-24 - 2021-10-03 |

Table A4 continued from previous page

| #  | Total interactions | Retweets | User-Authored Tweets | Replies or Quotes | Unique Users | Period                  |
|----|--------------------|----------|----------------------|-------------------|--------------|-------------------------|
| 26 | 58934              | 44014    | 1752                 | 13168             | 13170        | 2021-08-14 - 2021-08-23 |
| 27 | 8310               | 5504     | 164                  | 2642              | 4922         | 2021-04-26 - 2021-05-04 |
| 28 | 6773               | 4231     | 260                  | 2282              | 3875         | 2021-12-19 - 2021-12-28 |
| 29 | 103388             | 77394    | 3795                 | 22199             | 27043        | 2021-05-19 - 2021-05-28 |
| 30 | 85405              | 65013    | 2517                 | 17875             | 13934        | 2021-11-01 - 2021-11-11 |
| 31 | 48076              | 38076    | 2380                 | 7620              | 11222        | 2021-07-06 - 2021-07-14 |
| 32 | 9868               | 6062     | 403                  | 3403              | 4577         | 2021-09-18 - 2021-09-27 |
| 33 | 57946              | 49350    | 3056                 | 5540              | 20074        | 2021-05-16 - 2021-05-24 |
| 34 | 32083              | 19358    | 933                  | 11792             | 9898         | 2021-04-05 - 2021-04-13 |
| 35 | 13775              | 9208     | 343                  | 4224              | 4257         | 2021-08-12 - 2021-08-21 |
| 36 | 18417              | 12306    | 618                  | 5493              | 7519         | 2021-09-11 - 2021-09-20 |
| 37 | 11052              | 6739     | 232                  | 4081              | 4733         | 2021-04-29 - 2021-05-06 |
| 38 | 26073              | 16320    | 984                  | 8769              | 7434         | 2021-08-15 - 2021-08-25 |
| 39 | 16205              | 11089    | 350                  | 4766              | 6082         | 2021-07-21 - 2021-07-29 |
| 40 | 5819               | 4400     | 199                  | 1220              | 2957         | 2021-03-29 - 2021-04-03 |
| 41 | 18743              | 13081    | 463                  | 5199              | 6320         | 2021-06-01 - 2021-06-09 |
| 42 | 15745              | 9541     | 812                  | 5392              | 6189         | 2021-09-03 - 2021-09-11 |
| 43 | 25094              | 16066    | 416                  | 8612              | 7314         | 2021-06-03 - 2021-06-12 |
| 44 | 7853               | 6269     | 261                  | 1323              | 3448         | 2021-02-28 - 2021-03-03 |
| 45 | 34769              | 24966    | 1452                 | 8351              | 13994        | 2021-03-16 - 2021-04-01 |
| 46 | 11242              | 9199     | 481                  | 1562              | 4482         | 2021-03-26 - 2021-03-30 |
| 47 | 45896              | 33655    | 1946                 | 10295             | 8491         | 2021-04-13 - 2021-04-30 |

### A.3 Final Data Description

After merging the elite interactions and issue-related datasets and removing duplicates, the final dataset contained 3,170,540 interactions from 127,944 unique users. However, some users may have appeared due to sporadic engagement or measurement error. To address these issues, we restricted the dataset to users with at least three interactions related to Uruguayan politics in 2021. This filtering resulted in 57,768 unique users, with a median of 10 interactions per user. Furthermore, we were unable to retrieve additional data or estimate ideology for all 57,768 users. Some accounts were private, preventing access to likes, followed users, or timelines. Others were inactive or deleted by the time of data collection, and some did not follow enough political elites to allow for ideological estimation. We first retained only users for whom we were able to obtain data for all three queries (followed users, likes,

and timelines). After applying this criterion, the final sample consisted of 51,145 users. Among them, we successfully estimated the ideology of 43,947 non-elite PAUTUs, which serves as our primary dataset for analysis. This figure represents 76% of the original users with at least three interactions in the combined dataset. The methodology for ideology estimation and interaction queries is detailed in the following sections.

## Appendix B: Interactions Data Collection

This section details the interaction data collected for all 43,947 PAUTU accounts.

### B.1 Likes

For each user in the final PAUTU list, we retrieved up to 150 of their most recent likes between August 13, 2022, and August 22, 2022. However, not all users had 150 likes available, resulting in a median of 146 likes per user. Table A5 provides descriptive statistics for these interactions. The median number of likes directed at posts from accounts with an estimated ideology was 102 per user, while the median number of likes to content created by other PAUTU users was 90.

**Table A5:** Distribution of Likes per User

|                                            | Mean  | SD   | 5th Per.   | 25th Per.  | 50th Per.  | 75th Per.  | 95th Per.  |
|--------------------------------------------|-------|------|------------|------------|------------|------------|------------|
| Total likes                                | 138.2 | 25.7 | 79         | 142        | 146        | 148        | 150        |
| Likes to users with an ideology estimation | 92.5  | 41.8 | 16         | 59         | 102        | 130        | 144        |
| Likes to PAUTU users                       | 62.6  | 33.6 | 8          | 34         | 65         | 90         | 113        |
| Likes minimum date                         | -     | -    | 2019-06-11 | 2021-08-25 | 2022-05-15 | 2022-07-27 | 2022-08-13 |
| Likes median date                          | -     | -    | 2021-01-05 | 2022-01-06 | 2022-06-27 | 2022-08-06 | 2022-08-16 |
| Likes maximum date                         | -     | -    | 2021-09-24 | 2022-08-05 | 2022-08-14 | 2022-08-18 | 2022-08-21 |

### B.2 Timelines

For each PAUTU user, we retrieved up to 200 of their most recent interactions in their timeline between August 13, 2022, and August 16, 2022. As with likes, some users had fewer than 200 interactions available. The median number of interactions per user was 199. Table A6 presents a breakdown of these interactions by type.

**Table A6:** Distribution of Timeline Interactions per User

|                                                              | Mean  | SD   | 5th Per.   | 25th Per.  | 50th Per.  | 75th Per.  | 95th Per.  |
|--------------------------------------------------------------|-------|------|------------|------------|------------|------------|------------|
| Total interactions                                           | 186.5 | 35.6 | 87         | 196        | 199        | 200        | 200        |
| User-Authored-Tweets                                         | 21.9  | 29.8 | 0          | 3          | 10         | 29         | 84         |
| Retweets                                                     | 79.7  | 63.2 | 1          | 20         | 69         | 134        | 189        |
| Replies                                                      | 76.4  | 61.8 | 2          | 21         | 61         | 127        | 189        |
| Quotes                                                       | 9.1   | 15.6 | 0          | 0          | 3          | 12         | 39         |
| Dyadic interactions                                          | 164.7 | 42.9 | 60         | 153        | 183        | 194        | 199        |
| Dyadic interactions to a user<br>with an ideology estimation | 121   | 51.5 | 26         | 82         | 131        | 165        | 187        |
| Dyadic interactions to other<br>PAUTU users                  | 80.1  | 40.3 | 13         | 48         | 83         | 112        | 142        |
| Interaction minimum date                                     | -     | -    | 2018-04-16 | 2021-02-09 | 2021-11-17 | 2022-05-16 | 2022-08-01 |
| Interaction median date                                      | -     | -    | 2020-07-23 | 2021-07-13 | 2022-03-06 | 2022-06-29 | 2022-08-08 |
| Interaction maximum date                                     | -     | -    | 2021-09-29 | 2022-07-25 | 2022-08-12 | 2022-08-14 | 2022-08-16 |

**B.3 Followers**

For each PAUTU user, we retrieved the full list of accounts they followed. We then filtered this list to include only users who had engaged in at least one interaction within the combined elites and issues dataset (Appendix A3). This resulted in 13,660,197 following links, with a median number of followed accounts per PAUTU of 163.

## Appendix C: Ideology Estimation and Validation

### C.1 Estimation

A key component of this study is accurately estimating the political orientation of Twitter users. To achieve this, we follow the approach of (Barberá, 2015; Barberá et al., 2015), which models political orientation as a position in a latent multidimensional space. This space is inferred from users' following behavior, as the decision to follow certain accounts provides a strong signal of political alignment. For efficiency, the model is estimated using correspondence analysis. A detailed overview of this methodology can be found in Barberá (2015).

We identified a set of accounts whose following decisions are indicative of political ideology. This list includes politicians (e.g., current and former members of Parliament and governors), civil society institutions and leaders, political parties and factions, media outlets, and the 50 most retweeted accounts from the issues dataset described in Appendix A.2. To ensure robustness, elite accounts had to be followed by at least 2,000 users. We downloaded all the accounts that followed each of these 314 elite accounts. Ordinary users were required to follow at least three of these accounts, have posted at least 20 tweets, and follow at least 20 users. This selection process resulted in a  $324,653 \times 314$  matrix. Table A7 provides the full list of accounts included in the estimation.

**Table A7: Accounts Used to Estimate Ideology Latent Dimension**

| Panel A: Politicians |                 |                 |                 |                 |
|----------------------|-----------------|-----------------|-----------------|-----------------|
| luislalcallepou      | josecarlosmahia | gonzalomujica17 | jose_yurramendi | mujermira1      |
| alvarodelgadouy      | cdcamy          | gera_nunez1001  | carmelovidalin  | chdica          |
| bettianadiazrey      | camboue         | juanjoalaizola  | g_lopezmendez   | gvillar_uy      |
| antia_enrique        | casiain1        | anao1001        | felipeschipani  | alfredoasti     |
| tufilafuf            | lanzadib        | marneosoriolima | martintf1       | esmonicafa      |
| alejoumpierrez       | pachasanchez    | gabrieloteroa   | jumpierrez609   | gustavoleal_uy  |
| andreslimasalto      | domenechmg      | opepasquet      | varela2121      | alvillar        |
| besozzi_guille       | gerardoamarilla | perezbonavita   | pabloviana_ok   | ipassada        |
| dipmariosilvera      | sebandujar      | jradiccioni     | nicovieradiaz   | g_reboledo      |
| beatrizargimon       | antonini_edu    | nibiareisch     | tato_olmos      | edgardonovick   |
| oandradelallana      | rodrigoblas_    | dip_conradorod  | tatoviviano     | senadorsaravia  |
| mario_bergara        | ceciliabottino  | marurosello     | gustavozubia    | matiantia       |
| gbianchi404          | dcaggiani       | tatisabini      | robertsilva1971 | adrianbatllista |
| sergiobotana         | ecapillera      | svaldomir609    | alfieisaac      | anibal_pereyra_ |
| chcarreraleal        | fcarballo711    | dardointendente | carolinaache    | eduardobrenta   |
| germancoutinho       | acastaingdebat  | pdasilve        | lauraraffo      | marinadefrente  |
| guidomanirios        | gonzacivila     | pablo_mieres    | andresojedaok   | juanraferreira  |
| jorgegandini         | mariocolman     | pbartol65       | dmartinez_uy    | pabloferreri    |
| likechichian         | alvarodastugue  | drdanielsalinas | ernesto_talvi   | martincouto     |
| sandralazo2          | vds2525         | javiergarcia_uy | iturraldevpablo | pedrobordaberry |
| raul_lozanob         | echeverriadiego | uriartec1       | mnicabottero    | valentiesteban  |
| aniffouri            | luciaetchever11 | omarpagani      | analiapineyrua  | elguedor        |
| gustavopenades       | liliangalan1    | luisaheber      | pajaroenciso    | carlosrydstrom  |
| danielolesker        | gabrielgianoli  | cardosogerman   | constanza_fa    | desipag         |
| gloriasaravista      | diprodrigogoni  | tabareviera     | fabigoyen       | carolaviaga     |

Table A7 continued from previous page

|                                   |                 |                 |                 |                  |
|-----------------------------------|-----------------|-----------------|-----------------|------------------|
| enriquerubio_fa                   | claudia_hugo    | irenemoreirauy  | micamelgar      | fitzgeraldcp78   |
| carmensangui                      | laloirazabal    | martinlemauy    | micelinirafael  | carloscarapa     |
| jmasanguinetti                    | lusteduardo     | jlfalero        | libschitzmarga  | luispuig567pvp   |
| juansartoriuy                     | lustembergc     | cossecarolina   | oscardelosantos |                  |
| topolanskylucia                   | enzomalancastro | orsiyamandu     | juanaroballo    |                  |
| <b>Panel B: Parties / Sectors</b> |                 |                 |                 |                  |
| frente_amplio                     | pvp_espacio567  | elabrazo_uy     | ir_uruguay      | pnacionaljovent  |
| pnacional                         | herrerismo      | magnoliafa_uy   | redesfa         | jovenes404       |
| partidocolorado                   | todosuy         | jsu90ps         | frentamplistas  | jovenes40        |
| msartiguista                      | aire__fresco    | jfrenteamplio   | frenovadorauy   | juv_todos        |
| mpp609                            | airefresco_404  | ujc_uy          | seregni_org     | juventudalianza  |
| asambleauruguay                   | alianzauy       | psmontevideo    | espaciocuarenta | espacio1001fa    |
| socialistas90                     | lista71         | mujeresfa       | pindependiente  | mln_tupamaros    |
| pcu_fa                            | ciudadanos600   | casagrande_fa   | unidadpopularuy | parfrenteamplio  |
| lavertientefa                     | batllistas_uy   | facanelones     | gurisesmpp      | cabildo_uy       |
| nuevoespacio                      |                 |                 |                 |                  |
| <b>Panel C: Civil Society</b>     |                 |                 |                 |                  |
| ced_uy                            | votasiuy        | marceabdalcant  | cofe_pitcnt     | ades_montevideo  |
| pitcnt1                           | ignaciomunyo    | sutelpitcnt     | sintep_uy       | itu_agustin      |
| fenapesuruguay                    | richardread2014 | federacionancap | eduy21          | fumtep           |
| inddhh_uy                         | famidesa        | adur_udelar     | ceres_uy        | apu_uy           |
| asceepfeuu                        |                 |                 |                 |                  |
| <b>Panel D: Public Figure</b>     |                 |                 |                 |                  |
| jtrostchansky                     | loliponcedeleon | florenciaastori | mirthaguianze   | robertparrado    |
| ouicoucou                         | n_albertoni     |                 |                 |                  |
| <b>Panel E: Media</b>             |                 |                 |                 |                  |
| cronicasdeleste                   | blancarodgon    | jmcarzolio      | mercedesvigiluy | leagrille        |
| chasquetti                        | negracasablanca | epreve          | aldolema_uy     | georgina_mayo_   |
| fmarguery                         | igalvar71       | antonioladra    | patriciajmadrid | leosarro         |
| nataliaual                        | opetinatti      | rotambor        | pugliainvita    | confin48         |
| nicolaslussich                    | alejandroamaral | turkabdala      | diegodelacurva  | laetrachicatv    |
| pabaguirrezabal                   | grazianopascale | ddelgrossi      | taniauy         | estabocaesmia12  |
| santotv4                          | 5noticiasuy     | ladiaria        | alfredolara29   | lared21          |
| m24radio                          | uypolemica      | elpaisuy        | sudestada_uy    | uruguayalamanana |
| notoquennada                      | enlamiravtv     | observadoruy    | todaslasvoces4  | mateamargouy     |
| carasycaretasuy                   |                 |                 |                 |                  |
| <b>Panel F: Other accounts</b>    |                 |                 |                 |                  |
| soyalfito                         | santiago1974    | altafachauy     | daniel011965    | nosoynegaman     |
| marianellavale8                   | nefridio        | antoniojung1959 | alma49008929    | batlle_star      |
| tanqueshirley                     | _alc_           | copel13         | sebamarroni89   | cianobritos      |
| darioelque                        | rominapesce25   | sebas166019     | agustnhenderso1 | federicofontes   |
| terspepe                          | bautigilc       | lahittecarlos   | romeropiriz     | rperengano       |
| salocinuy                         | alfuitea        | matiasbarreto_  | fionalapri      | narcisotuitero   |
| rafaeldidonato1                   | drgeronvila     | nataliabrites5  | unnuevouruguayy | fedefa8          |
| giglesias19                       | elochurrinche   | carlosvarela02  | salchichita1    | patagonzav       |

**Table A7 continued from previous page**

adry112                      gilbenn                      diego\_fau                      jrfb290170                      danielaleoni13

## C.2 Validation

### C.2.1 Manual Validation

To assess the validity of our ideology estimates, we manually coded a random sample of 1,000 users, following the approach of (Conover et al., 2011; Golbeck and Hansen, 2014). Two undergraduate students independently reviewed each user's profile name, bio description, profile image, and a sample of 20 tweets. If available, tweets containing political keywords were prioritized; otherwise, tweets were reviewed chronologically. Users were classified into one of three categories: close to Coalición Multicolor (CM), close to Frente Amplio (FA), or neither/indeterminate, based on the following coding scheme:

“The goal of this coding scheme is to determine whether a user's profile description and tweet sample indicate a political orientation associated with the right/Coalición Multicolor (or any of its member parties), the left/Frente Amplio, or ‘neither/indeterminate’ if no clear political affiliation is evident. If a user expresses strong opposition to one bloc (in at least five tweets), they should be classified as supporting the other bloc. If they criticize both blocs, they should be coded as neither/indeterminate. Users in the neither/indeterminate category are those for whom political orientation cannot be clearly determined.”

The coding process yielded high inter-coder reliability, with an 89% agreement rate (Cohen's Kappa = 0.83). Among the 1,000 sampled users, 36% were classified as close to Frente Amplio, 35% as close to Coalición Multicolor, and 29% as neither/indeterminate. Table A8 presents the cross-tabulation of estimated and manually coded ideologies. While recall for the moderate category is lower, this may be due to insufficient information in the profile description or tweet sample to determine ideological leanings.

**Table A8: Manually Coded Ideology and Estimated Ideology**

|                               |          | <b>Manually Coded Ideology</b>   |                              |                                   |
|-------------------------------|----------|----------------------------------|------------------------------|-----------------------------------|
|                               |          | Right or<br>Coalición Multicolor | Moderate or<br>Indeterminate | Moderate Left or<br>Frente Amplio |
| <b>Estimated<br/>Ideology</b> | Left     | 1%                               | 30%                          | 91%                               |
|                               | Moderate | 8%                               | 27%                          | 8%                                |
|                               | Right    | 91%                              | 43%                          | 1%                                |

**Appendix D: Topic Classification**

The primary goal of this classification is to distinguish political tweets, as well as sports-related tweets. To achieve this, we first manually compiled an initial set of keywords based on both general terms (e.g., Spanish words for "president" or "soccer") and context-specific knowledge (e.g., accounts of local political elites and soccer teams). Table A9 lists the initial keywords defined for each category.

**Table A9: Dictionary of Politics and Sports Interactions**

| <b>Politics Original</b> |                  |                  |                  |
|--------------------------|------------------|------------------|------------------|
| @ABentaberri             | @DipRodrigoGoni  | @ju_seregnista   | @PartidoColorado |
| @Acastaingdebat          | @DiputadoMier    | @JuanARoballo    | @pbartol65       |
| @adrianbatllista         | @Dmartinez_uy    | @juanjoolaizola  | @PCU_FA          |
| @Aire__Fresco            | @DomenechMG      | @JuanRaFerreira  | @pdasilve        |
| @AireFresco_404          | @DrDanielSalinas | @JuanSartoriUY   | @PedroBordaberry |
| @AitaUbaldo              | @Ecapillera      | @jumpierrez609   | @perezbonavita   |
| @alejoumpierrez          | @echeverriadiego | @Juv_TODOS       | @pindependiente  |
| @Alexandralnza           | @EdgardoNovick   | @juventudalianza | @PNACIONAL       |
| @Alfielsaac              | @eduardobrenta   | @lagenteuy       | @PNacionalJoven  |
| @AlfredoAsti             | @ElAbrazo_UY     | @laloirazabal    | @psmontevideo    |
| @alfredodeMattos         | @ElgueDoR        | @lanzadib        | @PVP_Espacio567  |
| @AlianzaProgresi         | @EnriqueRubio_FA | @lauraraffo      | @raul_lozanob    |
| @alianzaay               | @EnzoMalanCastro | @LaVertienteFA   | @Redesfa         |
| @AlvaroDastugue          | @ernesto_talvi   | @LibschitzMarga  | @RobertSilva1971 |
| @AlvaroDelgadoUy         | @EsMonicaFA      | @liclerete       | @RodrigoAlberna3 |
| @alvillar                | @espacio1001fa   | @likechichian    | @rodrigoblas_    |
| @AnaLiaPineyrua          | @ESPACIOCUARENTA | @liliangalan1    | @SaltoAlvaroLima |
| @AnaO1001                | @Fabigoyen       | @Lista5050       | @sandalazo2      |
| @AndresLimaSalto         | @FaCanelones     | @lista71         | @Sebandujar      |
| @AndresOjedaOk           | @fcarballo711    | @LuciaEtchever11 | @SebastianCal1   |
| @Anibal_Pereyra_         | @FelipeSchipani  | @Luisaheber      | @SenadorSaravia  |
| @ANiffouri               | @FitzgeraldCP78  | @LuisLacallePou  | @seregni_org     |
| @Antia_Enrique           | @Frenovadoraay   | @LuisPuig567PVP  | @sergiobotana    |
| @antonini_edu            | @frentamplistas  | @LustEduardo     | @silvianane      |
| @APerrone510             | @Frente_Amplio   | @LustembergC     | @Socialistas90   |
| @AsambleaUruguay         | @g_lopezmendez   | @MagnoliaFA_uy   | @SPereyra609     |
| @Bacigalupe50            | @g_reboledo      | @MarianoTucci609 | @SValdomir609    |

|                  |                   |                   |                              |
|------------------|-------------------|-------------------|------------------------------|
| @Batllistas_uy   | @GabrielGianoli   | @MarinadeFrente   | @Tabareviera                 |
| @beatrizargimon  | @GabrielOteroA    | @Mario_Bergara    | @tatisabini                  |
| @besozzi_guille  | @GabyBarreiro_uy  | @mariocolman      | @tato_olmos                  |
| @bettianadiazrey | @gbianchi404      | @MarneOsorioLima  | @tatoviviano                 |
| @Cabildo_UY      | @gera_nunez1001   | @martincouto      | @TodosUy                     |
| @CamargoNazmi    | @GerardoAmarilla  | @MartinLemaUy     | @TopolanskyLucia             |
| @camboue         | @germancoutinho   | @martinmelazzi    | @tufilafluf                  |
| @CardosoGerman   | @gloriasaravista  | @martintf1        | @ujc_uy                      |
| @CarlosCarapa    | @gonzavivila      | @marurosello      | @UnidadPopularUy             |
| @CarlosRydstrom  | @GonzaloMujica17  | @matiantia        | @uriartec1                   |
| @CarlosTestaCA   | @Gtinaglini       | @MicaMelgar       | @ValentiEsteban              |
| @CarmeloVidalin  | @GuidoManiniRios  | @MichelliniRafael | @varela2121                  |
| @Carmensangui    | @GurisesMPP       | @MLN_Tupamaros    | @vds2525                     |
| @CarolAviaga     | @GustavoLeal_uy   | @MnicaBottero     | @Veronica_Mato               |
| @CarolinaAche    | @GustavoPenades   | @MPP609           | @Wcervini                    |
| @CasaGrande_FA   | @GustavoZubia     | @MSArtiguista     | diputado                     |
| @casiaian1       | @GVillar_uy       | @mujeresFA        | alvaro delgado               |
| @cdcmy           | @Herrerismo       | @MujerMira1       | bsenador                     |
| @ceciliabottino  | @ipassada         | @NancyNuezSoler4  | cabildo abierto              |
| @CeciliaCairo1   | @ir_uruguay       | @NibiaReisch      | cosse                        |
| @ChCarreraLeal   | @IreneMoreiraUy   | @NicolasLorenzoM  | eleccion                     |
| @chdica          | @IrigoinPedro     | @nicomesawaller   | frente amplio                |
| @ciudadanos600   | @IturraldeVPablo  | @nicovieradiaz    | lacalle                      |
| @claudia_hugo    | @IvanPosada33     | @NLarzabal1       | ley de urgente consideracion |
| @cmorel93        | @jalveargonzalez  | @NuevoEspacio     | luc                          |
| @Constanza_FA    | @JavierGarcia_Uy  | @Oandradelallana  | mieres                       |
| @corbo_milton    | @jfreteamplio     | @OmarPaganini     | mujica                       |
| @CosseCarolina   | @JLFalero         | @opepasquet       | parlamento                   |
| @DanielOlesker   | @JMaSanguinetti   | @OrquideaMinetti  | partido colorado             |
| @dardointendente | @jorgegandini     | @OrsiYamandu      | partido independiente        |
| @Dcaggiani       | @jorgewllarranaga | @OscarDeloSantos  | partido nacional             |
| @desipag         | @jose_yurramendi  | @Pablo_Mieres     | presidente                   |
| @Dip_ConradoRod  | @JoseCarlosMahia  | @pabloferrerri    | republica                    |
| @dip_lorenzo     | @Jovenes40        | @pabloviana_ok    | salinas                      |
| @DipGarciaMario  | @jovenes404       | @pachasanchez     | sanguinetti                  |
| @Dipmariosilvera | @Jradiccioni      | @PajaroEnciso     | vazquez                      |

| @DipOlivera                                 | @jsu90ps         | @PARFrenteAmplio    | votar                  |
|---------------------------------------------|------------------|---------------------|------------------------|
| <b>Politics Additional (Word Embedding)</b> |                  |                     |                        |
| bonomi                                      | intendenta       | pitcnt              | rendicion de cuentas   |
| deroga                                      | intendente       | presidente de asse  | secretario presidencia |
| edil                                        | ministerio       | presidente del inau | sendic                 |
| eleccion                                    | ministra         | proyecto de ley     | comunista              |
| gobierno                                    | ministro         | referendum          | socialista             |
| facho                                       |                  |                     |                        |
| <b>Sports Original</b>                      |                  |                     |                        |
| @7411hinchada                               | @martincharquero | bolso               | intermedio             |
| @alebalbi21                                 | @mauromas28      | campeon del siglo   | leo ramos              |
| @anainesmartinez                            | @nacional        | campeon del siglo   | libertadores           |
| @basketcapuy                                | @oficialcap      | cap                 | liga                   |
| @basketcapuy                                | @pasesuruguay    | carbonero           | liverpool              |
| @buysan                                     | @pasiontricolor1 | carbonero           | liverpool              |
| @campeonatoauf                              | @pillolarrea     | cavani              | manya                  |
| @danubiofc                                  | @punto_penal     | cds                 | nba                    |
| @decanocom                                  | @punto_penal     | clausura            | parque central         |
| @defensorsp                                 | @pyd1891         | cndf                | peñarol                |
| @dhfutbolok                                 | @realmadrid      | copa                | qatar                  |
| @dhfutbolok                                 | @ronaldaraujo_4  | danubio             | real madrid            |
| @diegomunoz75                               | @sport890        | darwin              | repetto                |
| @ecavaniofficial                            | @sudamericana    | defensor sporting   | river plate            |
| @espnuruguay                                | @tenfieldoficial | fifa                | rochet                 |
| @fcbarcelona                                | @uruguay         | futbol              | ronald araujo          |
| @fedeevalverde                              | apertura         | gargano             | ruglio                 |
| @kesmanalberto                              | aufoficial       | goianense           | suarez                 |
| @laabdon                                    | aurinegro        | gol                 | suarezanacional        |
| @lasvoces_futbol                            | barca            | golazo              | sudamericana           |
| @lfc                                        | basket           | goles               | tenis                  |
| @libertadores                               | bigua            | goll                | tricolor               |
| @luissuarez9                                | boca juniors     | hinchada            | valverde               |
| <b>Sports Additional (Word Embedding)</b>   |                  |                     |                        |
| @diegojokas                                 | club             | klopp               | rentistas              |
| @fernandocorchs                             | conmebol         | laquintana          | rugby                  |
| @jptamborini                                | convirtio        | larriera            | supercopa              |

|                 |                |                |             |
|-----------------|----------------|----------------|-------------|
| @nachoalonso    | damiani        | lorenzo        | tabla anual |
| @rodrigoromano  | deprotes       | manchester     | torneo      |
| @santirodriguez | edinson        | mundial        | trindade    |
| @sebasgiovaneli | eliminatorias  | mundocarbonero | trouville   |
| asistencia      | fase de grupos | mutual         | viatri      |
| barca           | forlan         | nandez         | vtvuruguay  |
| bengochea       | godin          | octavos        |             |
| bentancur       | gpc            | pellistri      |             |
| campeon         | halcon         | punto penal    |             |

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Next, we employed a word embedding model using unigrams and bigrams from a sample of 1,000,000 likes and tweets. Word embedding represents text as numerical vectors based on word frequency and matrix factorization (Hvitfeldt and Silge, 2021). We applied a skip-gram model to identify co-occurrence patterns of unigrams and bigrams within an 8-word window (after removing stopwords). We then calculated the relative co-occurrence frequency by dividing the probability of co-occurrence by the individual probability of each unigram or bigram appearing independently.

For each keyword in the initial dictionary, we examined the 10 most frequently co-occurring words and filtered those indicative of political or sports content. This process expanded the political dictionary from 256 to 274 keywords and the sports dictionary from 92 to 133 keywords. Finally, interactions were classified based on whether they contained at least one keyword from either dictionary. If an interaction included a term from the politics dictionary, it was classified as politics-related; similarly, if it contained a sports-related keyword, it was classified as sports-related. Instances classified as both were relatively rare, comprising only 0.1% of the dataset.

To validate this classification, we compared the dictionary-based results with a manually coded sample of 800 tweets, classified by one research assistant and one author. Inter-coder agreement for political content was 89% (Cohen's Kappa = 0.77), while for sports content, agreement reached 95% (Cohen's Kappa = 0.87), indicating a high level of reliability. The classification achieved 85% accuracy, 76% recall, and 95% precision for political content, whereas for sports content, accuracy was 90%, recall was 91%, and precision was 79%.

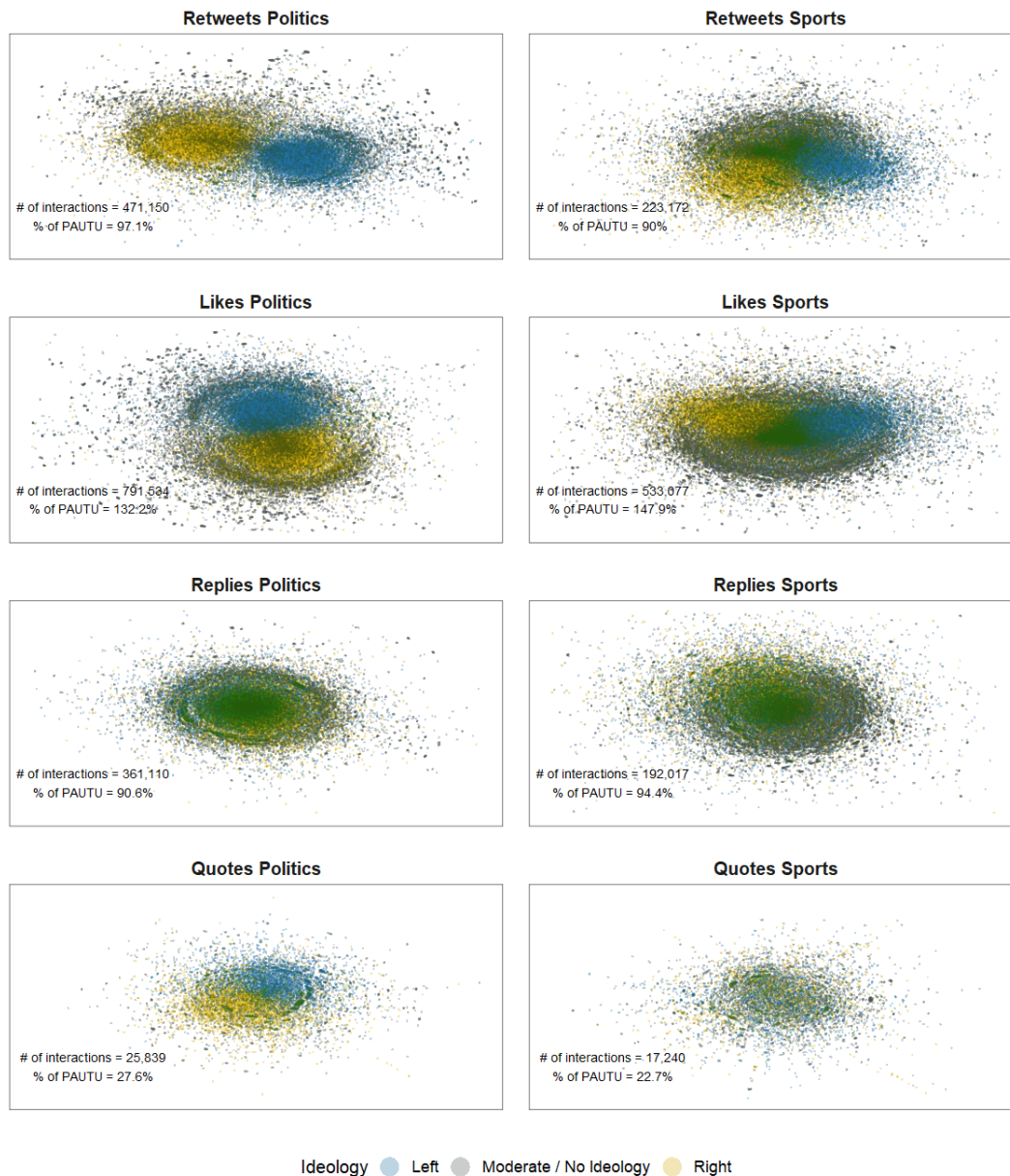
Appendix E: Media Accounts

Table A10 shows the list of media accounts analyzed.

Table A10: Media Accounts by Media Type

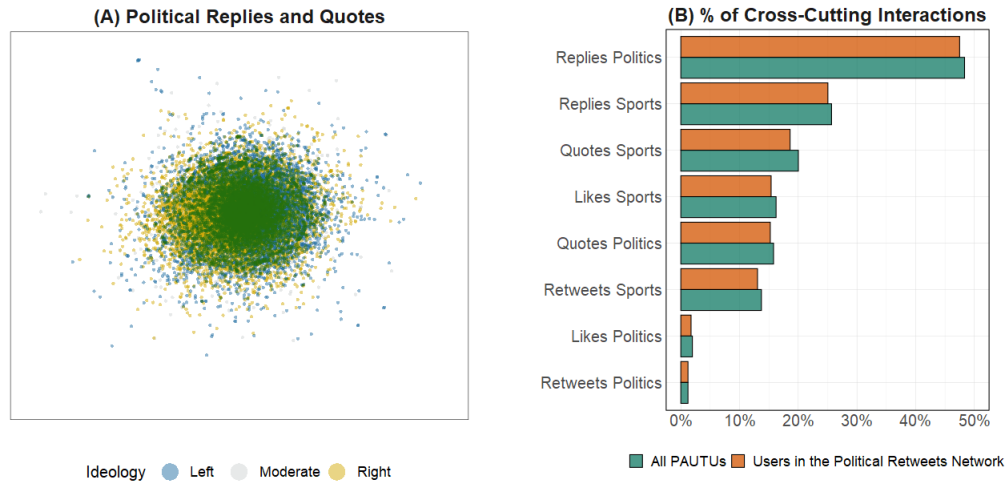
| TV Shows and Channels                  |                 |                 |              |                 |
|----------------------------------------|-----------------|-----------------|--------------|-----------------|
| 5noticiasuy                            | EnlaMiraVTV     | Estabocaesmia12 | MVDNoticias  | MonteCarlo930   |
| TelemundoUY                            | TelenocheUy     | TodasLasVoces4  | UyPolemica   | VTVuruguay      |
| buscadorestv                           | desayunos12     | laletrachicatv  | santotv4     |                 |
| Radio Shows and Stations               |                 |                 |              |                 |
| Asinosva850                            | DobleClick995   | InformaCarve850 | LaPecera1019 | FacilDesviarse  |
| Lascosas690                            | M24radio        | NadaQuePerderuy | NoToquenNada | RadioSarandi690 |
| RadioUruguayUy                         | carve850        |                 |              |                 |
| Written Press and Digital News Outlets |                 |                 |              |                 |
| BUSQUEDAonline                         | CarasyCaretasuy | CronicasDelEste | LaRed21      | ObservadorUY    |
| SemanarioBrecha                        | Subrayado       | Uruguaylamanana | elpaisuy     | ladiaria        |
| mateamargouy                           | portalmvd       | sudestada_uy    |              |                 |

## Appendix F: Additional Figures



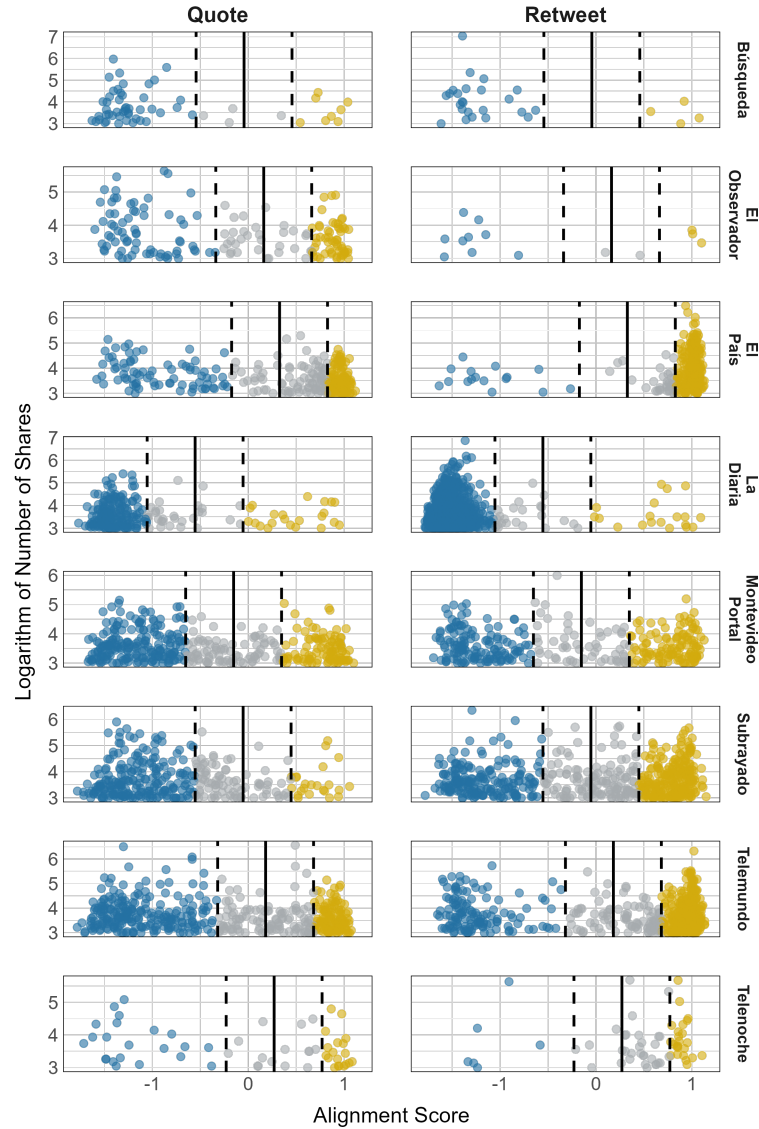
**Figure A2.** Twitter Interactions Networks by Interaction Type and Issue From PAUTUs to Any User

*Note:* Networks in this figure were created employing the same method as Figure 6 but shows also interactions made between PAUTUs and other users.



**Figure A3.** Political Homophily of Interactions Made by Users Who Participated in the Political Retweets Network in Other Communication Spaces

*Note:* Panel A shows the political replies and quotes network of interactions posted by users who participated in the political retweet network. Panel B shows the percentage of cross-cutting interactions (left users to right users or vice versa) made by users who participated in the political retweet networks by interaction type and issue, compared to all users.



**Figure A4.** Post-Level Alignment Scores Across Mainstream Media Outlets by Interaction Type

***Note:** This figure presents the post-level alignment scores for posts made by a subset of eight mainstream media outlets, by interaction type. Alignment scores are calculated as the average ideological position of PAUTUs who retweeted or quoted each post. The percentages indicate the proportion of posts with alignment scores falling within the substantive significance range ( $\pm 0.5$ ) for each outlet.*