Politicians from 12 countries rarely engage with researchers on social media, but this can change when expertise gains salience

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Abstract

Interactions between the policy and academic communities can play an important role on political decision-making. Still, the fact that much of the policymaking process happens behind closed doors obscures our understanding of the relationships between political decision-makers with academic researchers. This paper analyzes online behavioral data from 3,704 lawmakers in 12 countries and integrates them to a novel database of 410K academic researchers on Twitter. The findings suggest that lawmakers do follow, yet rarely visibly engage with researchers online. Lawmakers from conservative and radical right parties follow and engage less with researchers online than their colleagues from other parties. While the base engagement is relatively low across legislatures, it can increase when expertise gains salience. During the early stages of the COVID-19 pandemic, marked by policy uncertainty involving a novel and technically complex policy issue, lawmakers' overall inclination to follow and engage with scholars increased, most prominently targeting researchers from the medical sciences. These findings have implications for our understanding of politicians' strategic engagement with science production.

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Global challenges such as climate change and the COVID-19 pandemic underscore the potential importance of academic researchers, scientific research and insights on policy formation (Bavel et al., 2020; Berger et al., 2021; Geddes, 2021). Arguably, research evidence can be valuable for policy decisions by presenting policymakers with information to create and execute policies to address societal problems. Consequently, many governments worldwide recognize the indispensable role of research in shaping the future of their countries and have adopted new governance mechanisms under the paradigm of evidence-informed policymaking (Kenny et al., 2017; Juncker, 2014; *Foundations for Evidence-Based Policymaking Act* 2019).

At the same time, we live in a period with an unprecedented influx of scientific researchers into the workforce (Heuer, Einaudi, and Kang, 2023) and a growing volume of scientific output (Fortunato et al., 2018; Bornmann, Haunschild, and Mutz, 2021). The

increasingly growing pool of knowledge and knowledge producers converges with the reality that decision-makers in the policy field continuously receive a steady stream of information regarding societal issues from a diverse set of sources (Senninger and Seeberg, 2022). Therefore, the choices made by policymakers regarding their engagement with researchers and evidence, and ultimately whom they pay attention to, can have far-reaching consequences for policy development.

There is a long-standing research tradition in the social sciences looking at the evidence-policy nexus (Weiss, 1979; Caplan, 1979; Huberman, 1994). However, there are gaps in our understanding about how actors in the policy sphere are exposed to and consume research evidence (National Research Council, 2012). One of the main obstacles to studying this is the confidentiality and unobservability of policymaker behaviors and the policy-making process. Much of the previous work on this domain relies on participant observation and semi-structured interviews of decision-makers (Landry, Lamari, and Amara, 2003; Amara, Ouimet, and Landry, 2004; Geddes, 2021; Bogenschneider, Day, and Bogenschneider, 2021), self-reports from surveys (Caplan et al., 1975; Weiss and Bucuvalas, 1980), and information provision experiments (Vivalt and Coville, 2023; Lee, 2022; Baekgaard et al., 2019). Although this literature provides insights and frameworks to understand the intricacies behind the exposure of elite decision-makers to academic researchers, new methods and data sources can complement our knowledge about these complex phenomena.

I propose a novel way to study decision-makers' relationships and information flows with researchers that aims to overcome the unobservability of their behaviors by using online behavioral data from legislators' social media. Studies employing social media trace data have significantly enhanced our understanding of other social phenomena, such as economic connectedness and social mobility (Chetty et al., 2022), the digital gender gap across the globe (Fatehkia, Kashyap, and Weber, 2018), and the accelerating dynamics of collective attention (Lorenz-Spreen et al., 2019).

In this paper, I argue that by combining lawmakers' online behavioral data with information on researcher accounts, we can gain valuable insights that complement the evidence into the relationship between policy decision-makers and research findings obtained through other research designs, providing a unique perspective on this important issue. I investigate the legislator relationships to academic researchers in online social networks, exploring potential variation across different political contexts, jurisdictions, and individuals.

Equipped with these data, I tackle three overarching sequential questions: 1. Do we observe lawmakers following and engaging with researchers 'in the wild'? 2. Which legislator and legislature-level factors help predict online engagement with researchers? And, 3. do legislators adapt their behaviors when expertise gains salience?

I present cross-national empirical evidence from legislators' behavioral patterns in Twitter accounts across 12 democracies. My analyses suggest that (i) researchers are part of legislators' social media networks, but legislator-researcher online encounters are rare events, (ii) some legislator characteristics such as political ideology and educational levels are related with engagement, and (iii) in an instance of high demand for research evidence, such as a the COVID-19 pandemic, we observe an increase in legislators' inclination to follow and engage with academic research providers online.

Studying political and scientific elites on social media

Online social media platforms are increasingly important around the globe. These media have transformed market practices (Lamberton and Stephen, 2016), information diffusion and consumption (Westerman, Spence, and Van Der Heide, 2014), and political communication (Jungherr, 2016).

While the rise of social media is widespread, they have gained particular salience in the political and scientific communication spaces, with actors from these communities being present in large numbers and active in these platforms (Brainard, 2022).

For lawmakers, social media represent a relatively low-cost channel to convey information to the public and appeal to constituents. These media provide flexibility to communicate, receive feedback, and gather information without the constraints of other political arenas, such as regulated debates, prepared statements, and news media coverage (Castanho Silva and Proksch, 2022).

For academics, social media represent a tool to advance their careers, expand knowledge networks, and scale research dissemination to reach a wider audience (Klar et al., 2020). For instance, evidence suggests that sharing findings on social media is associated with increased reach outside academic audiences (Côté and Darling, 2018) and impact metrics (Eysenbach, 2011; Peoples et al., 2016).

Since nearly all legislators and a substantial number of researchers maintain Twitter accounts, this online environment presents opportunities to explore the extent to which the academic research community features on legislators social media.

Previous research suggests that the structure of individual's online social networks aligns with their offline social networks (Gonçalves, Perra, and Vespignani, 2011; Dunbar et al., 2015) and online behaviors can be revealing of an individual's latent features (Barberá, 2015; He and Tsvetkova, 2023). As such, I argue that legislators' engagement with researchers within the platform contains signals of their general inclination to engage with academics as a source of information.

Their accounts operate within the same framework of platform-imposed behaviors and are embedded in a broader social network. Additionally, from a legislator perspective, the different available behaviors on Twitter have unique properties, such as their potential time demands, privacy, cognitive engagement, and capacity to deliver messages to constituents (Metaxas et al., 2015; Wojcieszak et al., 2022). This unique context allows for extracting valuable information about legislators' relationships and engagement with researchers, facilitating meaningful comparisons. By examining legislators' social media behaviors, we gain insights into their connections and interests in academic research.

Empirical setting and contributions

To examine the relationship of legislators with academic researchers on social media and answer these questions, I match an original dataset containing the historical Twitter behavior of 3,704 legislators from 12 different countries with a newly compiled database of academic researchers on Twitter (see .

Figure 1 provides an overview of the study population and data structure. All-in-all, roughly 90% of the legislators in these democracies were on Twitter. The *Materials and Methods* section contains further information about the data collection and procedure.

On the legislator-end, I collect all public posts (≈20M), a list of their followed accounts (≈2.6M), and the historical archive of liked posts (≈6.5M) by lawmakers from 12 democ-

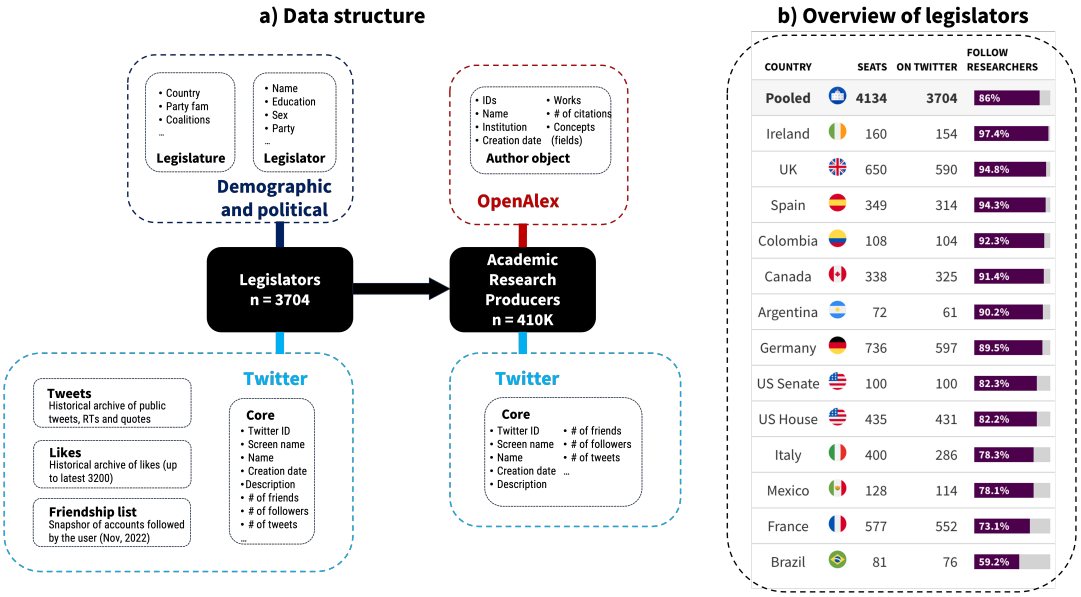

Figure 1. Study population and data structure. Panel a presents an overview of the data structure and connections between the legislator and academic researcher data sources. Panel b provides a summary of the legislators included in the study.

racies in Western Europe, North and South America actively in office during 2022. Additionally, I supplement the Twitter data with legislators' demographic and political information.

On the academic researcher-end, the starting point is a public database of 410K researcher Twitter IDs (Mongeon, Bowman, and Costas, 2023). I link these profiles to their respective researcher profiles on the open index of scholarly work, OpenAlex (Priem, Piwowar, and Orr, 2022), and extract background information about the academics, such as their scientific field.

I employ the list of researcher accounts to explore the instances where legislators engage with researchers in the platform. With these newly compiled data, I contribute to past work on the relationship between academic researchers, evidence, and policy in three ways.

First, I employ a set of behavioral measures to gauge legislators' engagement with academic researchers in the digital realm. Traditionally, studies in this area have relied on self-reported measures (Avey and Desch, 2014; Riphahn and Schnitzer, 2022; Seidel et al., 2021). While asking MPs how much they engage with academic researchers in their parliamentarian activities is valuable (Dodson, Geary, and Brownson, 2015; Purtle et al., 2018), these measures can be costly and difficult to scale beyond one context.

I study six specific behaviors, each giving different affordances to users and shedding light on diverse facets of the Twitter interaction landscape:

- **Following:** This behavior involves users subscribing to the updates of other accounts on the platform, reflecting their interest in specific users.
- **Mentioning:** This is the behavior by which users reference an account in their original posts. It entails direct engagement and communication with that user.
- **Retweeting:** This action entails users forwarding posts made by other accounts to

their own followers, potentially amplifying the reach of specific content.
- **Quote Tweeting:** This function allows users to share another account's post while adding their commentary, potentially contributing their perspective to the content.
- **Replying:** When an user responds to posts made by other users. It can reflect direct engagement in conversations and discussions taking place on the platform.
- **Liking:** By using the 'like' function, users generally express positive sentiments or approval for particular tweets, potentially contributing to the overall sentiment and visibility of content.

These behaviors provide indicators that can help understand the interactions between legislators and researchers on Twitter.

Second, leveraging the scalability of these measures, I extend the analyses to lawmakers from 12 countries. The majority of previous studies exploring research evidence in legislatures present insights from single-country case studies, with a lopsided focus on the U.S. context (Ouimet et al., 2023). This international perspective enables us to better understand the connections between legislators and academic research providers across diverse political, institutional, and cultural contexts.

By including legislators from various countries, I am able to examine correlates at the individual and legislature levels, such as legislators' professional backgrounds, political party affiliations, and the characteristics of the political systems. As such, I assess patterns and factors related to engagement with researchers across country contexts.

Third, I examine the responsiveness of legislators' to changes to the salience of expertise. The COVID-19 pandemic serves as an intriguing case study due to the heightened crisis, uncertainty, and urgency it brought about, coupled with a pressing need for guidance from scientific experts.

Existing research has shown that epistemic communities, or groups of experts with specialized knowledge, can exert significant influence in situations involving novel and technically complex policy issues, mainly when decision-makers have limited understanding of these issues (Haas, 1992; Dunlop, 2017). Crises such as the pandemic could, in principle, generate 'problem uncertainty', where policymakers are forced to grapple with uncertainty about the nature of the policy problems they face.

I employ the changes in salience of some types of expertise to investigate whether there were discernible shifts in the digital engagement behaviors of legislators with researchers in times of crisis when the stakes are high and the demand for evidence should be pronounced.

Results

Do legislators follow and engage with researchers online?

The general descriptive statistics derived from these data offer insights into the dynamics and interactions that characterize the relationships of these legislators with researchers on Twitter.

The majority of legislators follow researchers. About 86% of the legislators follow at least one account from the academic researcher list. The median legislator was following 990 accounts of which 10 were academic researchers (see *SI Appendix, Table B1* and *Figure B1* for an overview of the distribution of these behaviors and a comparisons to other

groups of Twitter users). Legislators concentrate their follows amongst a small fraction (6.7%) of the researcher accounts in the list.

The researcher list contains a number of power Twitter users, for example: @paulkrugman (4.5M followers), @ProfBrianCox (3.5M), or @DrTedros (1.9M). In total, the dataset contains around 20 accounts with more than 1M followers and 500 with more than 100K. Still, the results remain stable when trimming the top 1% of followed accounts (keeping only researchers with less than 16K followers). Around 84% of the legislators follow at least one account from the restricted list and the median legislator follows 6 users. Figure 2a presents an overview of the legislator-researcher Twitter events as a percentage of the total events for each behavior.

It is worth noting that the legislator accounts are highly active content-generators on Twitter. Approximately 60% of legislators have a daily posting rate, and a substantial 91% post on average once a week. This means they consistently share content on the platform. The median legislator has sent out a total of 4,535 tweets and retweets since joining Twitter.

In spite of the large volume of content production by legislators, only a small fraction can be linked to researchers. Although about 74% of the legislators has ever retweeted a research producer, the median legislator has engaged in this behavior 4 times. Behaviors such as mentioning an original posts, replying to, and quote tweeting are even rarer with slightly more than half of the legislators in the sample engaging in them and the median legislator doing it only once.

The data availability of legislator 'likes' is constrained by Twitter API limits, which allowed to retrieve latest 3,200 posts liked by a user. This means that these numbers present a lower bound, since the full 'like' history is unobserved for roughly 30% of legislators who presumably use the feature more often. Overall, 79% of legislators liked at least one post by an academic researcher. The median legislator liked 6 posts by researchers.

Another set of interesting patterns comes from exploring the researcher-end features. In Figure 2b, I present an overview of the proportional make up of the researchers legislators interact with by their scientific discipline. These data present a consistent picture in which social scientists consistently account for about half of those researchers linked to politicians. This is substantially larger than researchers in other fields. For instance, around 19% of listed political scientists are followed by at least one legislator, compared to 3.4% of listed biologists. The overall pool of researchers in the study operate in diverse branches, e.g., natural (32%), social (27%), and applied (24%) sciences. Still, social scientists in the list are about 3.5x more likely to be followed against a comparable group in overall size, natural scientists, and account for almost 47% of all followed researchers in the pooled network.

All-in-all, these descriptive analyses suggest that legislators do follow and engage with researchers in the 'digital wild'. Still there is an important qualification to this findings. These instances are highly uncommon, accounting for slightly more than 1% of legislator Twitter events of each behavior. For example, the proportional representation of researchers in legislator networks is smaller than in other groups, such as, political and science journalists, as well as a random sample of researchers from the list (see *SI Appendix, Figure B2*).

In addition to that, these behaviors are aimed at a select group of researchers. While 6.7% of researchers in the list of 410K appear in legislator networks, as behaviors become

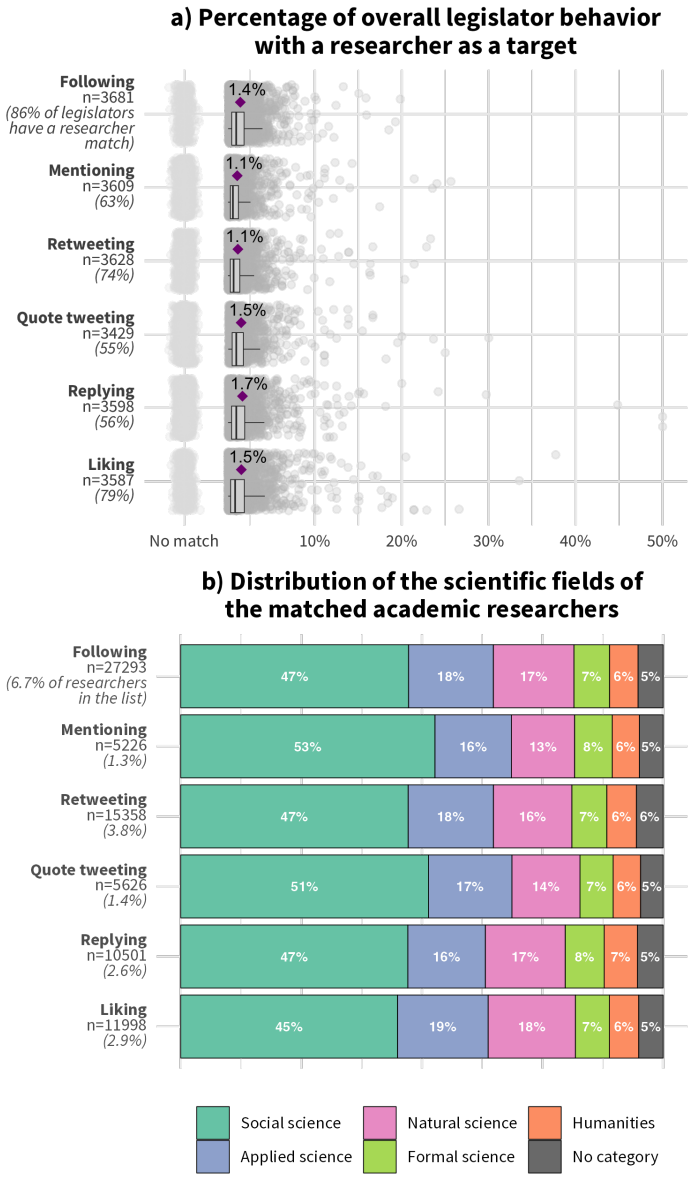

Figure 2. Overview of legislator Twitter behaviors targeted at academic researchers. In Panel A, dots represent individual legislators. The auxiliary information on the labels present the number of legislators who engage in the behavior and percentage who establish a researcher link at least once. Their position of the x-axis convey instances where events imply a legislator-researcher link as a proportion of the legislator totals. The purple rombi present the pooled legislator average. In Panel B, the auxiliary information denote the numbers and percentages of unique researchers from the original list identified as targets of legislators' Twitter events.

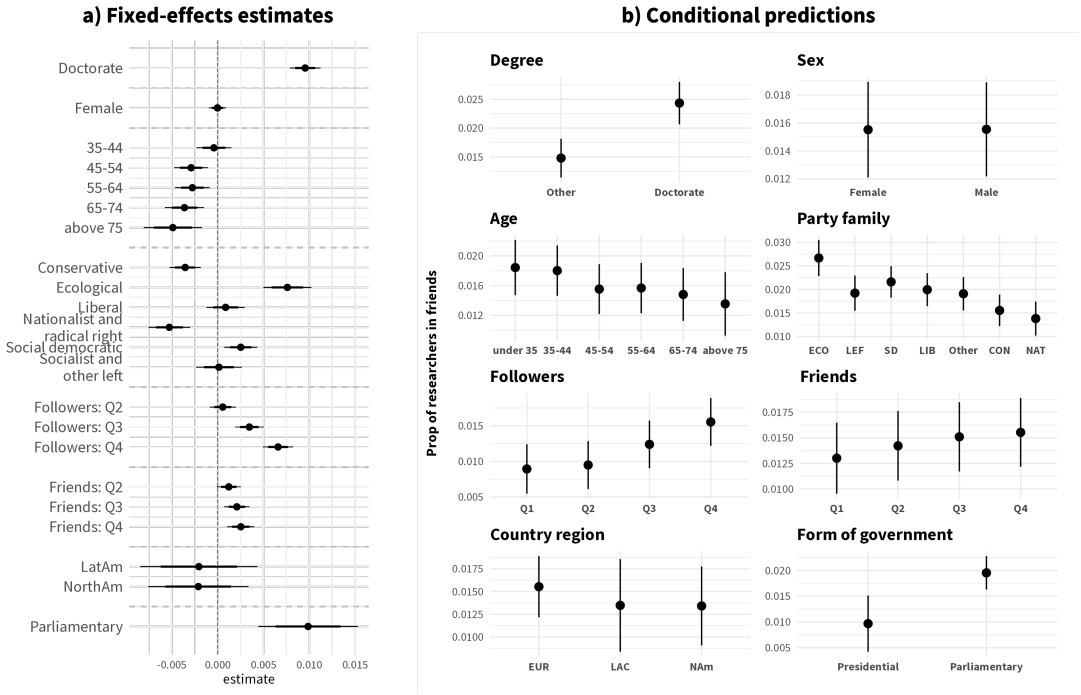

Figure 3. Estimated effects of legislator and legislature characteristics on the proportion of researchers in their networks. Results from a linear mixed-effects model with legislature random effects with age (under 35), party family (other), country region (Europe), system (presidential), and Q1 for followers and friends as references for categorical variables. Number of observations: 3,247. Panel a presents the coefficients with 80% and 95% confidence intervals. The conditional predictions are computed with numeric covariates are held at their means and the other covariates at their modes: no research degree, presidential, European, male, 45-54, Q1, and Conservative party. The std. followers and friends are referenced to individual's legislature mean.

more active the group reduces between 1% and 4%. Furthermore, researchers in the social sciences account consistently for about half of the legislator-researcher matches across behaviors, suggesting that legislators tend to pay attention to them to a higher degree.

Are there any predictors of engagement with researchers based on specific contextual and legislator characteristics?

Previous research has identified individual-level correlates of trust and politicization of science, as well as preferences for the role of scientific experts in policy debates (for an overview see Rutjens, Heine, et al., 2018). Overall, findings point to asymmetries related to political ideology (Gauchat, 2012; Lewandowsky and Oberauer, 2016; Linden et al., 2021; Funk et al., 2019), religiosity and spirituality (Rutjens, Sutton, and Lee, 2018; Rutjens, Sengupta, et al., 2022), knowledge about science and education level (Rutjens, Sutton, and Lee, 2018; Mede and Schäfer, 2020), age (Anderson et al., 2012), and gender (Gauchat, 2012; Roten, 2004). More recently, cross-national evidence of science skepticism in 24 countries suggests that there is variation of predictors across politicized scientific domains, in addition to heterogeneity in the levels of skepticism across countries (Rutjens, Sengupta, et al., 2022).

When mapping these features onto the available legislator behavioral data from Twitter, I find some differences between legislator characteristics and across legislatures. Figure 3 presents the results from a linear mixed-effect model exploring predictors of the proportion of researchers in legislators' networks. The general direction of the predictors is parallel in all the behaviors of the study (see *SI Appendix, Figures C1-C5* for the models of the remaining engagement behaviors).

While there are some national-level differences as evidenced by the general overview in Figure 1b, there are no discernible regional differences between Latin American, North American, and European legislators. Although legislators exhibit a similar propensity to follow and engage with scientists in the list across the different behaviors, the disparity becomes evident in the magnitude of their engagement. Latin American legislators, on average, follow and engage with a smaller absolute number of academic researchers compared to their counterparts from other regions. A potential explanation for the regional patterns can be on the researcher supply side and their proximity to the legislators (see *SI Appendix, Table B2* for an overview of the geographical distribution of the researchers).

When it comes to one of the most salient and studied correlates of attitudes towards science in the general public, political ideology, these data reveal a picture consistent with previous findings (Gauchat, 2012; Lewandowsky and Oberauer, 2016; Mede and Schäfer, 2020). That is to say, legislators representing parties with right-wing and populists ideologies showcase less interest in researchers online. While legislators from most party families exhibit similar behaviors on average, legislators belonging to conservative, as well as nationalist and radical right parties are less likely to follow and engage with academic researchers and they do so at a lower rate. The opposite is true for legislators belonging to ecological parties. These legislators are more likely to follow and engage with researchers and do so proportionally more. Around 99% of 'greens' follow researchers in contrast to 66% for nationalist and radical right legislators.

Among the legislators in the sample on Twitter, 9% hold doctoral degrees, or were enrolled in programs, leading to an advanced research qualification, such as doctorates or equivalent. Legislators with research qualifications themselves were more likely to follow and engage with academic researchers. Additionally, academic researchers represent a higher proportion of these behaviors in the platform for legislators with research backgrounds compared to their non-researcher counterparts. The patterns attached to these legislators with higher educational qualifications can stem from their knowledge and interest about science, as well as the personal networks they created in the process of obtaining their degrees.

Furthermore, researcher producers in the list consistently represent a higher proportion of the networks and behaviors of younger, "digital native" and more popular legislator accounts. Notably, there were no observable differences between male- and female-identifying legislators.

Can legislators' inclination to follow and engage with researchers change? Evidence from the emergence of a global pandemic.

The early stages of the COVID-19 pandemic, marked by unfamiliarity and uncertainty, provide a scenario to explore the implications of exogenous shocks to the demand of specific types of expertise on legislators' online behaviors.

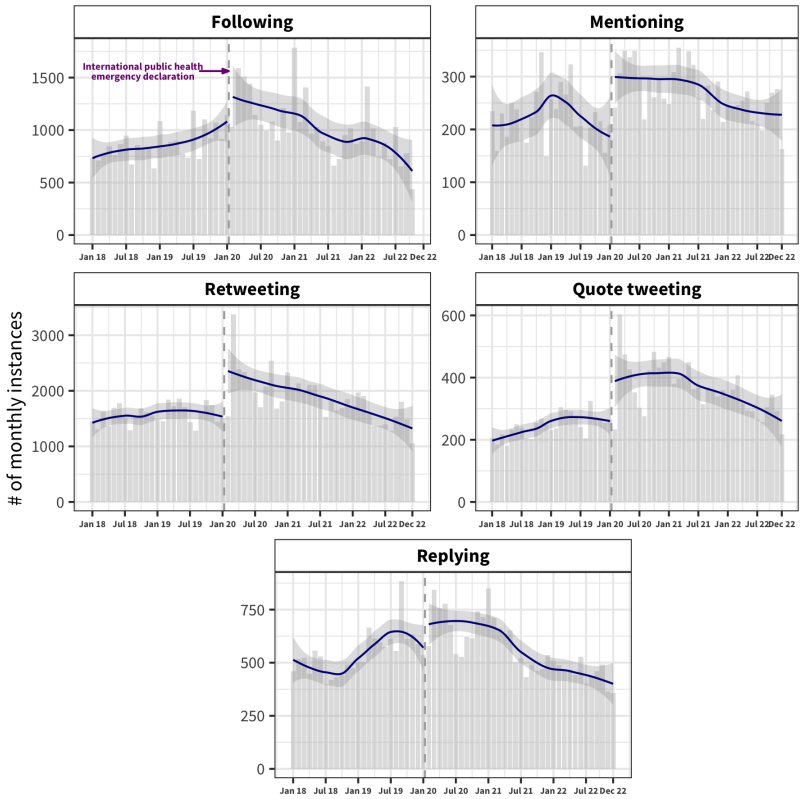

Figure 4. Distribution of the counts of monthly legislator-researcher instances by behavior between 2018 and 2022 (with LOESS smoothed moving average). The vertical dashed line marks the declaration of COVID-19 as an international public health emergency by the World Health Organization on January 30, 2023.

A number of studies about the early reactions in politics to the pandemic have investigated shifts in public opinion formation and electoral outcomes (Bol et al., 2021; Leininger and Schaub, 2023), as well as changes in the content of politicians online communications (Kim et al., 2022; Guntuku et al., 2021; Engel-Rebitzer et al., 2021). In this part of the study, I focus on Twitter as a marketplace of information and assess the temporal variation of legislators' Twitter behaviors towards academic researchers.

These analyses rely on the rise of the COVID-19 pandemic as an exogenous source of variation in the importance of scientific expertise. Given the magnitude, unexpectedness and salience of the pandemic, I leverage this variation to assess the average observed changes in legislator behaviors between the pre- and during-COVID periods. I use January 30, 2020 as the cut-point for the periods. This date marks the declaration of COVID as a public health emergency of international concern by the World Health Organization, as well as coincides with increased public awareness of the virus and its risks (see *SI Appendix, Figure B3* for an overview of COVID-related search term popularity around the period).

Based on the literature on policy learning and diffusion indicating that experts with specialized knowledge can gain salience and wield influence in situations dealing with new and technically complex policy issues (Haas, 1992; Dunlop, 2017), I expect that at the dawn of the COVID pandemic, researchers with expertise pertaining to the crisis will see

increases in engagement by legislators. To test this expectation, I look at the potential for changes in the rate of legislator-researcher links across Twitter behaviors between the pre- and during-COVID periods in the early stages of the pandemic.

The academic community swiftly reacted to the emergence of COVID-19. Surveys conducted among researchers in U.S. and European institutions reveal that approximately one-third of them shifted their focus to COVID-19-related research during the early phases of the pandemic across various disciplines (Gao et al., 2021). Even more, some research suggests that this scientific production quickly permeated policy circles, for example as source material for policy documents (Yin et al., 2021).

Figure 4 presents an overview of the distribution of the monthly legislator-researcher matches over the five-year period between January 2018 to December 2022. Across behaviors, the first half of 2020 is consistently amongst the periods with the highest number of instances in which legislators follow and engage with researchers during the time window. Most behaviors peak on March 2020, the month when COVID-19 was declared a pandemic.

I argue that the state of crisis, uncertainty, and urgency brought about by COVID-19 heightened demand for guidance from experts. Further, this demand is coupled with an increase in internet use and digital communication due to the spread of the virus. The context of the dawn of the pandemic make this a likely scenario for observing potential shifts in salience of different types of expertise translating into legislators' online behaviors.

That said, there can be some potential mechanisms at play that are not directly related to lawmakers' incentives, but reflect the broader impact that COVID could have had on science production and online behaviors more generally. For instance, potential changes in the supply of information or time spent online. It is possible that Twitter feeds contained more "scientific" content in the outset of COVID and people spent more time online. Still, it is not a logical consequence that politicians engage more when there is more science in their feed, rather one would expect that content needs to be relevant to translate in active behaviors.

Internet use increased during the pandemic (*Measuring digital development - Facts and figures 2021* 2021). This seems to be also the case for legislators, who became more active on Twitter in the outset of the COVID period. There are observable increases across the range of platform-behaviors after January 2020, the only behavior that does not exhibit statistically significant changes is following (B = 3.4; 95% CI=[-3.76,10.4]; P=0.35). The volume of following new accounts is constant over the pre- and post-threshold periods (see *SI Appendix, Figure C6* for models exploring period differences across different bandwidths). That is to say, legislators tweeting and engagement with tweets increased on average in the during-COVID period, yet the rate at which they created new links in their network remained unchanged.

Since the increase in online activity at the outset of the pandemic can obfuscate the analysis of absolute changes between the two periods, I focus my analysis on the estimated differences in the ratio of the probability of an event in the COVID period to the probability of an outcome in an pre-COVID period.

To achieve this, I estimate logistic mixed-effects models with legislator and legislature random effects to explore the likelihood that an observed legislator Twitter event targets a researcher in the COVID compared to the pre-COVID period. Figure 5a presents the

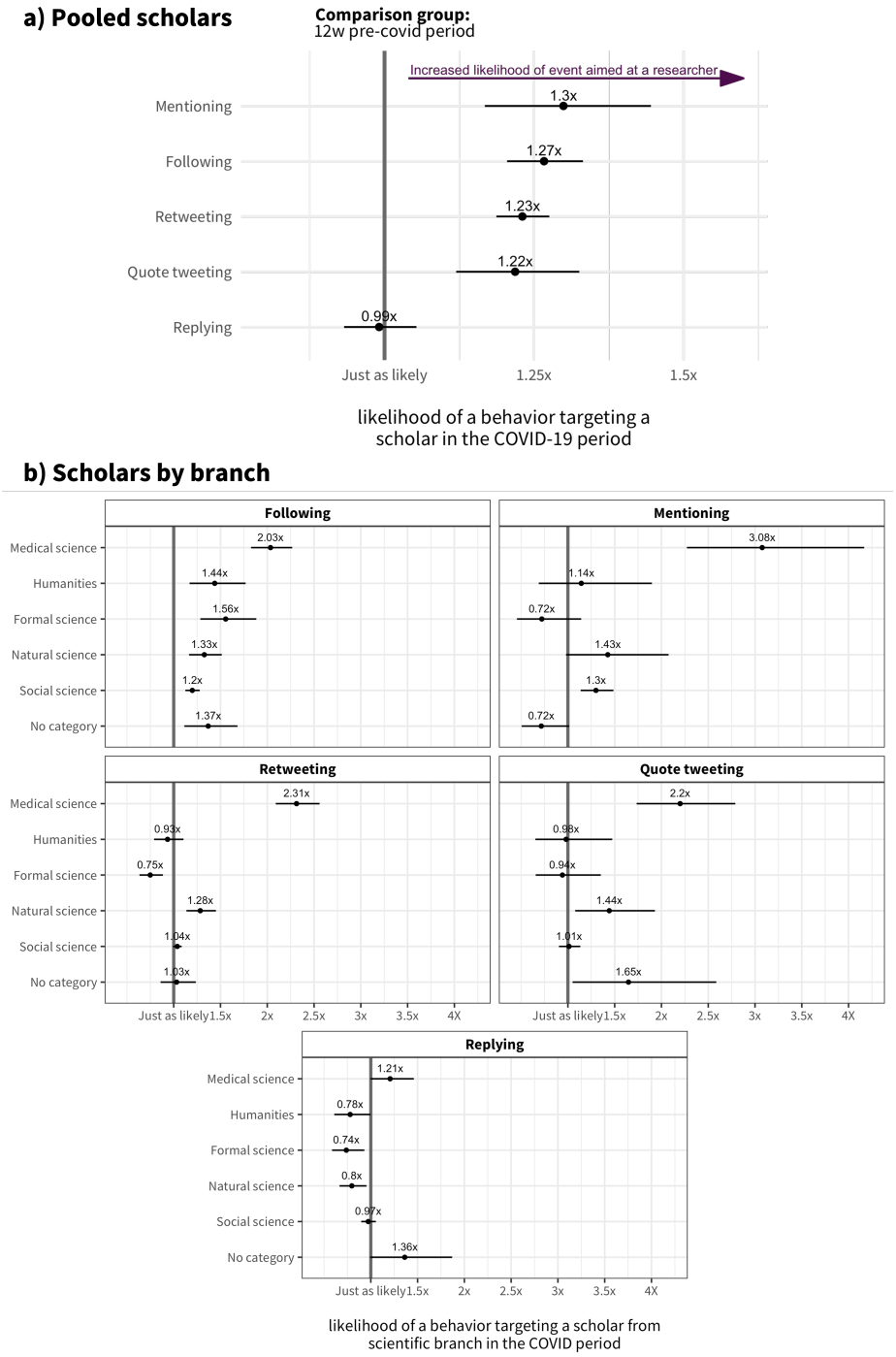

Figure 5. Marginal effects on following and engagement with academic researchers during the COVID versus pre-COVID periods with a ±12 week bandwidth. Results from a logistic mixed-effects models with legislature random effects. The estimates in the figure are relative risks representing the ratio of the probability of an event in the COVID period to the probability of an outcome in an pre-COVID period.

marginal effects extracted from the models comparing a ±12-week time-window since the declaration of COVID-19 as public health emergency of international concern.

The results suggest that researchers were more likely to be at the receiving end of

legislator behaviors on Twitter in the first months of COVID compared to the baseline period. The only behavior that showcases no discernible change is a behavior that requires scholars to be first-movers by addressing legislators directly in their content in the first place, i.e., replying. For instance, new following edges in the 12 weeks after the declaration of COVID-19 as public health emergency of international concern period are 27% (B = 1.27; 95% CI=[1.2,1.33]; P=<0.001); more likely to be targeted at a scholar compared to new edges created in the pre-COVID period.

These findings present evidence that legislators' inclination to follow and engage with researchers increased in the period where expertise from epistemic communities gained salience. Notably, according to subgroups analyses the increases are not observed for populist left and right legislators (see *SI Appendix, Figure C7 and C8* for the party family and education subgroup marginal effects).

Although previous evidence suggests that COVID research transcended disciplinary boundaries, there are signs that at the initial stages particular attention was paid to biomedical research (Yin et al., 2021). Considering legislators' online behaviors at the dawn of the pandemic, we could anticipate a similar tendency.

That is, if the changes in behaviors are a reflection of the increase interest and need for expertise, in addition to the overall increase in interactions with scholars, we would expect them to be particularly targeted at researchers whose expertise is more proximal to the immediate questions emanating from the rise of COVID.

The models in Figure 5b look at the different behaviors targeting scholars in the specific groups based on their scientific branch. The subgroup that sticks out the most are the researchers belonging to the medical sciences. While the increase in the likelihood of a new following event being targeted at scholars is observable across all fields, the other behaviors present a picture where researchers from the medical field experience the largest increases in the COVID period and in some cases the only ones experiencing increases compared to the baseline period. For example, these results suggest that retweets observed in the COVID period were 2.3 times more likely to have a medical scientist as a source creator compared to retweets in the pre-COVID period. Although expertise and commentary from researchers in other branches could have been of great importance during this period, arguably, researchers in this subgroup are the more plausible members of the epistemic communities holding specialized knowledge for this particular situation.

Altogether, the temporal analyses of legislator behaviors on Twitter reveal an increase in engagement with researchers. The observed surge in legislator-to-researcher interactions evident across behaviors underscores the importance of specialized knowledge in informing the public discussion at the dawn of the COVID pandemic. Notably, the growth in attention to scholars in the biomedical research camp reflects the relative importance of expertise relevant to the immediate challenges posed by the pandemic.

Discussion

Around the globe, the paradigm of evidence-informed policymaking has increasingly gained footing. However, scientific research is not always readily available with clear advice for every policy issue, as such academic researchers and scientific insights compete with other types of information for policymakers' attention (Senninger and Seeberg, 2022; Walgrave and Dejaeghere, 2017). Given the potential significance of self-selection into

information exposure and source preferences in the policymaking arena, exploring the dynamics behind interactions between lawmakers and researchers is of vital importance.

The results of this study offer evidence about the characteristics of the relationship between legislators and academic researchers online with specific focus on the lawmakers-end.

Due to the challenges to the study of these relationships as they develop in parliamentary halls, universities, research institutes, and conference rooms across the globe, I employ social media trace data from legislators' Twitter profiles and map it onto a novel dataset of more than 400K researcher producers.

I structured my inquiry following three sequential questions regarding the prevalence, correlates, and malleability of legislator engagement with academic researchers online. I bring forward the following messages.

First, legislators engage with researchers online. Still, the extent of their engagement is limited. In the absence of a benchmark for "analogue" interactions between researchers and lawmakers, many of us do not have a very informed prior for these quantities. As such, it is difficult to assess whether this is more, or less, online engagement with researchers online than many would expect.

What this findings offer is evidence that engagement with researcher content is rare. Although lawmakers are very active content producers and sharers, the median legislator has only retweeted 4 tweets by researchers and quoted, mentioned, and replied once in their Twitter history.

Furthermore, these Twitter events feature a very small set of researchers from the list of close to 410K. For example, around 6.7% of researchers in the list are followed, 3.8% are retweeted, and 1.4% quote tweeted. The majority of these actions features social scientists.

Second, the descriptive models highlight some contextual and legislator-level features that correlate with lawmakers' inclination to follow and engage with researchers online and their proportion.

One key legislator-level predictor is their academic background. The legislators who were enrolled in, or hold, a doctorate degree were more likely to follow and engage with researchers from the list, in addition to having a larger proportion of scholars as targets of their Twitter behaviors. This suggests that legislators with research experience may be more inclined to engage. A conclusion from this is that legislators with research backgrounds may be more likely to be exposed to the insights and perspectives offered by academic researchers.

Additionally, the results present an ideological divide. On the one hand, lawmakers belonging to ecological parties are more likely to follow and engage with researchers. Also, the 'greens' who follow and engage with researchers tend to do it proportionally more than their fellow legislators. On the other hand, politicians from parties in the radical right, an ideological camp associated to science-skepticism and populism (Mede and Schäfer, 2020), exhibit the opposite inclinations.

Third, I leverage the variation to salience of expertise created by the COVID-19 pandemic to assess changes in legislators' online behaviors. The onset of the COVID-19 pandemic prompted an increase in online activity by legislators. Most engagement behaviors experienced growth during this period. Alongside the surge in activity, there was a notable increase in the likelihood that the legislator Twitter events were aimed at re-

searchers compared to the pre-COVID baseline across the array of behaviors in the study.

Furthermore, the analysis of the different scientific branches revealed that scholars in the medical sciences experienced the larger increases in likelihood of following and engagement during the pandemic. This can be taken as a signal that to some extent legislators were responsive to the information needs related to health and public safety, providing valuable insights into the salience of expertise during times of crisis.

The study of online behavioral data provides a window into the complex relationship between academic researchers and legislators in the digital age. While social media platforms offer a potential bridge for connecting these two communities, the limited nature of legislators' online engagement with researchers suggests that more efforts are needed to facilitate meaningful interactions and knowledge sharing.

Naturally, these results cannot capture nor offer a complete overview of the complexities embedded in the interactions between lawmakers and researchers, even less so of research insights influencing a policymaker's thinking. However, the signals uncovered from the digital realm in this study do talk to a crucial condition in the potential chain of events that could lead to 'policy impact' of research findings; that is, legislators engaging with researchers and the insights they generate in the first place.

These findings do shed light into some of the features related to legislators' inclination to engage with researchers, in addition to potential circumstances under which contact across the two communities can increase.

Materials and Methods

Data collection

The data were collected between November and December 2022. The dataset comprises information on 3,704 legislators and close to 410K academic researchers. On the legislator end, it includes all legislators who have a Twitter account from 12 different countries in the Americas and Europe. The legislators' Twitter IDs and handles were collected by extracting them from three sources: their (i) Wikidata entry, (ii) Google Knowledge Graph, and (iii) legislatures' webpages. In instances where there was no match for a legislator, I performed a manual search on Twitter with the legislator's name as the query. All Twitter accounts were manually validated to ensure that they belonged to the politician. The legislators on Twitter constitute 90% of all legislators across the 13 legislatures, ranging from 72% in the Italian Chamber of Deputies to 100% in the US Senate.

Based on the legislator list, I extracted the legislators' friends, tweets, retweets, quotes, and likes through the Twitter REST API using the rtweet package (Kearney, 2019). The resulting data consists of a snapshot of all the accounts the politicians followed on November 30, 2022, the universe of their public tweets, retweets, and quotes since they joined the platform, and their most recent 3200 likes (see Figure 1a for a general overview of the data and its structure).

On the academic research producer end, the starting point was an open dataset of researchers on Twitter (Mongeon, Bowman, and Costas, 2023). This dataset identifies 423,920 Twitter accounts associated to authors of academic studies. The process by which the Twitter accounts are associated to academic researchers relies on matching author entities from the open index of scholarly work, OpenAlex, to Twitter features (handles and screen names) from the Crossref Event Data from January 2022 containing over

60 million Twitter events linking to scholarly work.

As a result of the matching, the list only contains a portion of the universe of academic researchers on Twitter. To be captured, a researchers must have employed their Twitter account to share their authored academic content. While there might be trade-offs between employing this dataset, against a greedier matching procedure, such as keyword matching from the descriptions of accounts linked to legislators, I argue this group is of particular interest for the questions at hand. This is a subset of researchers who employ their social media presence to share academic research, making them more likely vehicles of academic insights to legislators.

In total, I extracted the Twitter account core features of 409,192 active users by December 5, 2022 from this initial dataset. Further, I link the Twitter user entities with information on their respective research profiles, including institutional affiliation, publications, citations, and inferred research discipline from the OpenAlex API (Priem, Piwowar, and Orr, 2022).

Measurement

Platform behaviors:

I map the list of research producer accounts onto the legislators' friendship snapshots, tweets, retweets, quotes, and likes. I encode instances where there is a legislator-academic researcher account pairing. For the analyses, I employ the binary measures of matches, total counts of instances, and proportions of matches in reference to totals for all platform-specific behaviors. In other words, whether the legislators follow, mention, retweet, quote, and like academic researchers, how many times they do, and what share that represents of the overall historic legislator behavior.

Minimum possible following date:

An important set of data points to understand the temporal development of legislator Twitter networks are the dates in which they start to follow other accounts. Nevertheless, the platform does not make these data available through their API. One way to gather this information is to extract snapshots of the networks in different periods and comparing the relationships between nodes. Still, given the API limits, these crawls can be time expensive and only allow for tracking forward-looking developments. That is to say, they can only showcase changes from the first snapshot. In this study, I use a different strategy relying on the default call to extract users' friendships returning a reverse chronologically ordered list. Using these data, I employ a method for inferring the creation time of connections between users in unidirectional networks using auxiliary information from the nodes (Meeder et al., 2011). The procedure involves mapping legislators' chronologically ordered edge list alongside the "record-breakers" (users with the latest account creation times) for each legislator. The follow time for a user is estimated to be the creation time of the most recent record-breaker among the users who that legislator follows.

Legislators' formal academic research background:

I collect the highest educational qualification of legislators. I extract this information from the i) legislature's websites, b) governmental repositories of public servant curricula, iii) legislative transparency portals managed by academic institutions, iv) legislators' personal sites, and v) Wikidata entries. I map legislators' qualifications on the International Standard Classification of Education (ISCED 97) (Hoffmeyer-Zlotnik and Wolf, 2003).

I identify a legislator to have research credentials when they have been enrolled or completed second-stage tertiary education degrees (e.g., doctorates or equivalent).

Scientific fields of academic researchers:
I employ the concepts attached to the work of academic researchers from OpenAlex to extract their predicted scientific field. This measure is based on a hierarchical representation of scientific concepts. OpenAlex uses a slightly modified concept tree based on the one developed by Microsoft Academic Graph (Shen, Ma, and Wang, 2018). I use the top layer of the tree containing 19 concepts ranging from political to materials science. These classes are derived from the titles, abstracts, and hosts of the papers authored by the researcher. Further, I map the predicted fields into four branches i) humanities, ii) social, iii) natural, and iv) formal science (see *SI Appendix, Figure C1* for an overview of the distribution of research fields).

Party family:
I utilize the party family encoding from the Manifesto Project. In the main analyses, I group electoral alliances, single issue, and ethnic parties onto the other category, as well as christian-democratic and conservative parties onto an umbrella conservative party category. In the cases where parties were not present in the dataset, I assigned them to a category employing the Manifesto Party Family Handbook (Lehmann et al., 2023). *SI Appendix, Table C8* presents the different political parties alongside their family classification.

Other covariates:
For the analyses, I employ: Age divided in six categories (under 35, 35-44, 45-54, 55-64, and above 75), sex measured using a dummy variable (male=0; female=1), and the accounts' following and friends quartiles.

Supplementary materials

To view supplementary materials for this article, please visit https://doi.org/11.1111/xxx/xxxx.

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References

Amara, Nabil, Mathieu Ouimet, and RÉjean Landry (2004). "New Evidence on Instrumental, Conceptual, and Symbolic Utilization of University Research in Government Agencies". In: *Science Communication* 26.1, pp. 75–106. DOI: 10.1177/1075547004267491.

Anderson, Ashley A., Dietram A. Scheufele, Dominique Brossard, and Elizabeth A. Corley (2012). "The Role of Media and Deference to Scientific Authority in Cultivating Trust in Sources of Information about Emerging Technologies". In: *International Journal of Public Opinion Research* 24.2, pp. 225–237. DOI: 10.1093/ijpor/edr032.

Avey, Paul C. and Michael C. Desch (2014). "What Do Policymakers Want From Us? Results of a Survey of Current and Former Senior National Security Decision Makers1". In: *International Studies Quarterly* 58.2, pp. 227–246. DOI: 10.1111/isqu.12111.

Baekgaard, Martin, Julian Christensen, Casper Mondrup Dahlmann, Asbjørn Mathiasen, and Niels Bjørn Grund Petersen (2019). "The Role of Evidence in Politics: Motivated Reasoning and Persuasion among Politicians". In: *British Journal of Political Science* 49.3, pp. 1117–1140. DOI: 10.1017/S0007123417000084.

Barberá, Pablo (2015). "Birds of the Same Feather Tweet Together: Bayesian Ideal Point Estimation Using Twitter Data". In: *Political Analysis* 23.1, pp. 76–91. DOI: 10.1093/pan/mpu011.

Bavel, Jay J. Van, Katherine Baicker, Paulo S. Boggio, Valerio Capraro, Aleksandra Cichocka, Mina Cikara, Molly J. Crockett, Alia J. Crum, Karen M. Douglas, James N. Druckman, John Drury, Oeindrila Dube, Naomi Ellemers, Eli J. Finkel, James H. Fowler, Michele Gelfand, Shihui Han, S. Alexander Haslam, Jolanda Jetten, Shinobu Kitayama, Dean Mobbs, Lucy E. Napper, Dominic J. Packer, Gordon Pennycook, Ellen Peters, Richard E. Petty, David G. Rand, Stephen D. Reicher, Simone Schnall, Azim Shariff, Linda J. Skitka, Sandra Susan Smith, Cass R. Sunstein, Nassim Tabri, Joshua A. Tucker, Sander van der Linden, Paul van Lange, Kim A. Weeden, Michael J. A. Wohl, Jamil Zaki, Sean R. Zion, and Robb Willer (2020). "Using social and behavioural science to support COVID-19 pandemic response". In: *Nature Human Behaviour* 4.5, pp. 460–471. DOI: 10.1038/s41562-020-0884-z.

Berger, Loïc, Nicolas Berger, Valentina Bosetti, Itzhak Gilboa, Lars Peter Hansen, Christopher Jarvis, Massimo Marinacci, and Richard D. Smith (2021). "Rational policymaking during a pandemic". In: *Proceedings of the National Academy of Sciences* 118.4, e2012704118. DOI: 10.1073/pnas.2012704118.

Bogenschneider, Karen, Elizabeth Day, and Bret N. Bogenschneider (2021). "A window into youth and family policy: State policymaker views on polarization and research utilization". In: *The American Psychologist* 76.7, pp. 1143–1158. DOI: 10.1037/amp0000681.

Bol, Damien, Marco Giani, André Blais, and Peter John Loewen (2021). "The effect of COVID-19 lockdowns on political support: Some good news for democracy?" In: *European Journal of Political Research* 60.2, pp. 497–505. DOI: 10.1111/1475-6765.12401.

Bornmann, Lutz, Robin Haunschild, and Rüdiger Mutz (2021). "Growth rates of modern science: a latent piecewise growth curve approach to model publication numbers from established and new literature databases". In: *Humanities and Social Sciences Communications* 8.1, pp. 1–15. DOI: 10.1057/s41599-021-00903-w.

Brainard, Jeffrey (2022). "Riding the twitter wave". In: *Science* 375.6587, pp. 1344–1347. DOI: 10.1126/science.abq1541.

Caplan, Nathan (1979). "The Two-Communities Theory and Knowledge Utilization". In: *American Behavioral Scientist* 22.3, pp. 459–470. DOI: 10.1177/000276427902200308.

Caplan, Nathan, Russell J. Stambaugh, Andrea Morrison, and University of Michigan (1975). *The use of social science knowledge in policy decisions at the national level: a report to respondents*. Ann Arbor: Institute for Social Research, University of Michigan. 63 pp.

Castanho Silva, Bruno and Sven-Oliver Proksch (2022). "Politicians unleashed? Political communication on Twitter and in parliament in Western Europe". In: *Political Science Research and Methods* 10.4, pp. 776–792. DOI: 10.1017/psrm.2021.36.

Chetty, Raj, Matthew O. Jackson, Theresa Kuchler, Johannes Stroebel, Nathaniel Hendren, Robert B. Fluegge, Sara Gong, Federico Gonzalez, Armelle Grondin, Matthew Jacob, Drew Johnston, Martin Koenen, Eduardo Laguna-Muggenburg, Florian Mudekereza, Tom Rutter, Nicolaj Thor, Wilbur Townsend, Ruby Zhang, Mike Bailey, Pablo Barberá,

Monica Bhole, and Nils Wernerfelt (2022). "Social capital I: measurement and associations with economic mobility". In: *Nature* 608.7921, pp. 108–121. DOI: 10.1038/s41586-022-04996-4.

Côté, Isabelle M. and Emily S. Darling (2018). "Scientists on Twitter: Preaching to the choir or singing from the rooftops?" In: *FACETS* 3.1. Ed. by Stephen B. Heard, pp. 682–694. DOI: 10.1139/facets-2018-0002.

Dodson, Elizabeth A., Nora A. Geary, and Ross C. Brownson (2015). "State legislators' sources and use of information: bridging the gap between research and policy". In: *Health Education Research* 30.6, pp. 840–848. DOI: 10.1093/her/cyv044.

Dunbar, R. I. M., Valerio Arnaboldi, Marco Conti, and Andrea Passarella (2015). "The structure of online social networks mirrors those in the offline world". In: *Social Networks* 43, pp. 39–47. DOI: 10.1016/j.socnet.2015.04.005.

Dunlop, Claire A. (2017). "The irony of epistemic learning: epistemic communities, policy learning and the case of Europe's hormones saga". In: *Policy and Society* 36.2, pp. 215–232. DOI: 10.1080/14494035.2017.1322260.

Engel-Rebitzer, Eden, Daniel Camargo Stokes, Alison Buttenheim, Jonathan Purtle, and Zachary F. Meisel (2021). "Changes in legislator vaccine-engagement on Twitter before and after the arrival of the COVID-19 pandemic". In: *Human Vaccines & Immunotherapeutics* 17.9, pp. 2868–2872. DOI: 10.1080/21645515.2021.1911216.

Eysenbach, Gunther (2011). "Can Tweets Predict Citations? Metrics of Social Impact Based on Twitter and Correlation with Traditional Metrics of Scientific Impact". In: *Journal of Medical Internet Research* 13.4, e2012. DOI: 10.2196/jmir.2012.

Fatehkia, Masoomali, Ridhi Kashyap, and Ingmar Weber (2018). "Using Facebook ad data to track the global digital gender gap". In: *World Development* 107, pp. 189–209.

Fortunato, Santo, Carl T. Bergstrom, Katy Börner, James A. Evans, Dirk Helbing, Staša Milojević, Alexander M. Petersen, Filippo Radicchi, Roberta Sinatra, Brian Uzzi, Alessandro Vespignani, Ludo Waltman, Dashun Wang, and Albert-László Barabási (2018). "Science of science". In: *Science* 359.6379, eaao0185. DOI: 10.1126/science.aao0185.

Foundations for Evidence-Based Policymaking Act (2019). In collab. with United States: National Archives and Records Administration: Office of the Federal Register.

Funk, Cary, Meg Hefferon, Brian Kennedy, and Courtney Johnson (2019). "Trust and Mistrust in Americans' Views of Scientific Experts". In.

Gao, Jian, Yian Yin, Kyle R. Myers, Karim R. Lakhani, and Dashun Wang (2021). "Potentially long-lasting effects of the pandemic on scientists". In: *Nature Communications* 12.1, p. 6188. DOI: 10.1038/s41467-021-26428-z.

Gauchat, Gordon (2012). "Politicization of Science in the Public Sphere: A Study of Public Trust in the United States, 1974 to 2010". In: *American Sociological Review* 77.2, pp. 167–187. DOI: 10.1177/0003122412438225.

Geddes, Marc (2021). "The webs of belief around 'evidence' in legislatures: The case of select committees in the UK House of Commons". In: *Public Administration* 99.1, pp. 40–54. DOI: 10.1111/padm.12687.

Gonçalves, Bruno, Nicola Perra, and Alessandro Vespignani (2011). "Modeling Users' Activity on Twitter Networks: Validation of Dunbar's Number". In: *PLOS ONE* 6.8, e22656. DOI: 10.1371/journal.pone.0022656.

Guntuku, Sharath Chandra, Jonathan Purtle, Zachary F Meisel, Raina M Merchant, and Anish Agarwal (2021). "Partisan Differences in Twitter Language Among US Legislators

During the COVID-19 Pandemic: Cross-sectional Study". In: *Journal of Medical Internet Research* 23.6, e27300. DOI: 10.2196/27300.

Haas, Peter (1992). "Introduction: Epistemic Communities and International Policy Coordination". In: *International Organization* 46, pp. 1–35. DOI: 10.1017/S0020818300001442.

He, Yuanmo and Milena Tsvetkova (2023). "A Method for Estimating Individual Socioeconomic Status of Twitter Users". In: *Sociological Methods & Research*, p. 00491241231168665. DOI: 10.1177/00491241231168665.

Heuer, Ruth, Peter Einaudi, and Kelly Kang (2023). *Research Doctorate Conferrals Rebound, Leading to Record Number of U.S. Doctorate Recipients in 2022*. NSF 23-353. National Science Foundation.

"International Standard Classification of Education, ISCED 1997" (2003). In: *Advances in Cross-National Comparison: A European Working Book for Demographic and Socio-Economic Variables*. Ed. by Jürgen H. P. Hoffmeyer-Zlotnik and Christof Wolf. Boston, MA: Springer US, pp. 195–220.

Huberman, Michael (1994). "Research utilization: The state of the art". In: *Knowledge and Policy* 7.4, pp. 13–33. DOI: 10.1007/BF02696290.

Juncker, Jean-Claude (2014). *Mission letter to Commissioner Moedas*.

Jungherr, Andreas (2016). "Twitter use in election campaigns: A systematic literature review". In: *Journal of Information Technology & Politics* 13.1, pp. 72–91. DOI: 10.1080/19331681.2015.1132401.

Kearney, Michael W. (2019). "rtweet: Collecting and analyzing Twitter data". In: *Journal of Open Source Software* 4.42, p. 1829. DOI: 10.21105/joss.01829.

Kenny, Caroline, David Christian Rose, Abbi Hobbs, Chris Tyler, and Jason Blackstock (2017). *The role of research in the UK Parliament*. Vol. 1. Parliamentary Office of Science and Technology.

Kim, Taegyoon, Nitheesha Nakka, Ishita Gopal, Bruce A. Desmarais, Abigail Mancinelli, Jeffrey J. Harden, Hyein Ko, and Frederick J. Boehmke (2022). "Attention to the COVID-19 Pandemic on Twitter: Partisan Differences Among U.S. State Legislators". In: *Legislative Studies Quarterly* 47.4, pp. 1023–1041. DOI: 10.1111/lsq.12367.

Klar, Samara, Yanna Krupnikov, John Barry Ryan, Kathleen Searles, and Yotam Shmargad (2020). "Using social media to promote academic research: Identifying the benefits of twitter for sharing academic work". In: *PLOS ONE* 15.4, e0229446. DOI: 10.1371/journal.pone.0229446.

Lamberton, Cait and Andrew T. Stephen (2016). "A Thematic Exploration of Digital, Social Media, and Mobile Marketing: Research Evolution from 2000 to 2015 and an Agenda for Future Inquiry". In: *Journal of Marketing* 80.6, pp. 146–172. DOI: 10.1509/jm.15.0415.

Landry, Réjean, Moktar Lamari, and Nabil Amara (2003). "The Extent and Determinants of the Utilization of University Research in Government Agencies". In: *Public Administration Review* 63.2, pp. 192–205.

Lee, Nathan (2022). "Do Policy Makers Listen to Experts? Evidence from a National Survey of Local and State Policy Makers". In: *American Political Science Review* 116.2, pp. 677–688. DOI: 10.1017/S0003055421000800.

Lehmann, Pola, Simon Franzmann, Tobias Burst, Sven Regel, Felicia RiethmÃ¼ller, Andrea Volkens, Bernhard WeÃŸels, and Lisa Zehnter (2023). *The Manifesto Data Collection. Manifesto Project (MRG/CMP/MARPOR). Version 2023a*.

Leininger, Arndt and Max Schaub (2023). "Strategic Alignment in Times of Crisis: Voting at the Dawn of a Global Pandemic". In: *Political Behavior*. DOI: 10.1007/s11109-023-09885-8.

Lewandowsky, Stephan and Klaus Oberauer (2016). "Motivated Rejection of Science". In: *Current Directions in Psychological Science* 25.4, pp. 217–222. DOI: 10.1177/0963721416654436.

Linden, Sander van der, Costas Panagopoulos, Flávio Azevedo, and John T. Jost (2021). "The Paranoid Style in American Politics Revisited: An Ideological Asymmetry in Conspiratorial Thinking". In: *Political Psychology* 42.1, pp. 23–51. DOI: 10.1111/pops.12681.

Lorenz-Spreen, Philipp, Bjarke Mørch Mønsted, Philipp Hövel, and Sune Lehmann (2019). "Accelerating dynamics of collective attention". In: *Nature Communications* 10.1, p. 1759. DOI: 10.1038/s41467-019-09311-w.

Measuring digital development - Facts and figures 2021 (2021). Geneva: International Telecommunication Union.

Mede, Niels G. and Mike S. Schäfer (2020). "Science-related populism: Conceptualizing populist demands toward science". In: *Public Understanding of Science* 29.5, pp. 473–491. DOI: 10.1177/0963662520924259.

Meeder, Brendan, Brian Karrer, Amin Sayedi, R. Ravi, Christian Borgs, and Jennifer Chayes (2011). "We know who you followed last summer: inferring social link creation times in twitter". In: *Proceedings of the 20th international conference on World wide web*. WWW '11. New York, NY, USA: Association for Computing Machinery, pp. 517–526. DOI: 10.1145/1963405.1963479.

Metaxas, Panagiotis, Eni Mustafaraj, Kily Wong, Laura Zeng, Megan O'Keefe, and Samantha Finn (2015). "What Do Retweets Indicate? Results from User Survey and Meta-Review of Research". In: *Proceedings of the International AAAI Conference on Web and Social Media* 9.1, pp. 658–661. DOI: 10.1609/icwsm.v9i1.14661.

Mongeon, Philippe, Timothy D. Bowman, and Rodrigo Costas (2023). "An open data set of scholars on Twitter". In: *Quantitative Science Studies*, pp. 1–11. DOI: 10.1162/qss_a_00250.

National Research Council (2012). *Using Science as Evidence in Public Policy*. Washington, D.C.: National Academies Press.

Ouimet, Mathieu, Morgane Beaumier, Adrien Cloutier, Alexandre Côté, Éric Montigny, François Gélineau, Steve Jacob, and Stéphane Ratté (2023). "Use of research evidence in legislatures: a systematic review". In: *Evidence & Policy* -1 (aop), pp. 1–18. DOI: 10.1332/174426421X16656568731041.

Peoples, Brandon K., Stephen R. Midway, Dana Sackett, Abigail Lynch, and Patrick B. Cooney (2016). "Twitter Predicts Citation Rates of Ecological Research". In: *PLOS ONE* 11.11, e0166570. DOI: 10.1371/journal.pone.0166570.

Priem, Jason, Heather Piwowar, and Richard Orr (2022). *OpenAlex: A fully-open index of scholarly works, authors, venues, institutions, and concepts*. DOI: 10.48550/arXiv.2205.01833.

Purtle, Jonathan, Elizabeth A. Dodson, Katherine Nelson, Zachary F. Meisel, and Ross C. Brownson (2018). "Legislators' Sources of Behavioral Health Research and Preferences for Dissemination: Variations by Political Party". In: *Psychiatric Services* 69.10, pp. 1105–1108. DOI: 10.1176/appi.ps.201800153.

Riphahn, Regina T. and Monika Schnitzer (2022). "Die Bedeutung wissenschaftlicher Evidenz für die Arbeit des Bundestags". In: *Wirtschaftsdienst* 102.4, pp. 270–272. DOI: 10.1007/s10273-022-3155-y.

Roten, Fabienne Crettaz von (2004). "Gender Differences in Attitudes toward Science in Switzerland". In: *Public Understanding of Science* 13.2, pp. 191–199. DOI: 10.1177/0963662504043870.

Rutjens, Bastiaan T., Steven J. Heine, Robbie M. Sutton, and Frenk Van Harreveld (2018). "Attitudes Towards Science". In: *Advances in Experimental Social Psychology*. Vol. 57. Elsevier, pp. 125–165. DOI: 10.1016/bs.aesp.2017.08.001.

Rutjens, Bastiaan T., Nikhil Sengupta, Romy van der Lee, Guido M. van Koningsbruggen, Jason P. Martens, André Rabelo, and Robbie M. Sutton (2022). "Science Skepticism Across 24 Countries". In: *Social Psychological and Personality Science* 13.1, pp. 102–117. DOI: 10.1177/19485506211001329.

Rutjens, Bastiaan T., Robbie M. Sutton, and Romy van der Lee (2018). "Not All Skepticism Is Equal: Exploring the Ideological Antecedents of Science Acceptance and Rejection". In: *Personality and Social Psychology Bulletin* 44.3, pp. 384–405. DOI: 10.1177/0146167217741314.

Seidel, Katja, Hans Verbeek, Sophie Fessel, and Florian Meer (2021). *Nutzen von wissenschaftlicher Evidenz: Erwartungen an wissenschaftliche Expertise : Bericht über eine Bundestagsbefragung im Rahmen der Leopoldina-Evidenzinitiative unter Leitung von Claudia Buch, Regina T. Riphahn und Monika Schnitzer*. MyCoRe Community, vol. 27.

Senninger, Roman and Henrik Seeberg (2022). *What Makes Politicians Attend to Societal Problems? Evidence from a Field Experiment and Interviews*. DOI: 10.31219/osf.io/gcn4q.

Shen, Zhihong, Hao Ma, and Kuansan Wang (2018). *A Web-scale system for scientific knowledge exploration*.

Vivalt, Eva and Aidan Coville (2023). *How Do Policymakers Update Their Beliefs?*

Walgrave, Stefaan and Yves Dejaeghere (2017). "Surviving Information Overload: How Elite Politicians Select Information". In: *Governance* 30.2, pp. 229–244. DOI: 10.1111/gove.12209.

Weiss, Carol H. (1979). "The Many Meanings of Research Utilization". In: *Public Administration Review* 39.5, pp. 426–431. DOI: 10.2307/3109916.

Weiss, Carol H. and Michael J. Bucuvalas (1980). "Truth Tests and Utility Tests: Decision-Makers' Frames of Reference for Social Science Research". In: *American Sociological Review* 45.2, pp. 302–313. DOI: 10.2307/2095127.

Westerman, David, Patric R. Spence, and Brandon Van Der Heide (2014). "Social Media as Information Source: Recency of Updates and Credibility of Information*". In: *Journal of Computer-Mediated Communication* 19.2, pp. 171–183. DOI: 10.1111/jcc4.12041.

Wojcieszak, Magdalena, Andreu Casas, Xudong Yu, Jonathan Nagler, and Joshua A. Tucker (2022). "Most users do not follow political elites on Twitter; those who do show overwhelming preferences for ideological congruity". In: *Science Advances* 8.39, eabn9418. DOI: 10.1126/sciadv.abn9418.

Yin, Yian, Jian Gao, Benjamin F Jones, and Dashun Wang (2021). "Coevolution of policy and science during the pandemic". In: *Science* 371.6525, pp. 128–130.

Politicians from 12 countries rarely engage with researchers on social media, but this can change when expertise gains salience

Supplementary Appendix

Sebastian Ramirez-Ruiz

Contents

A Data Collection and Sample

A.1 Data on legislators from 12 countries

A.2 Data on researcher's social media profiles

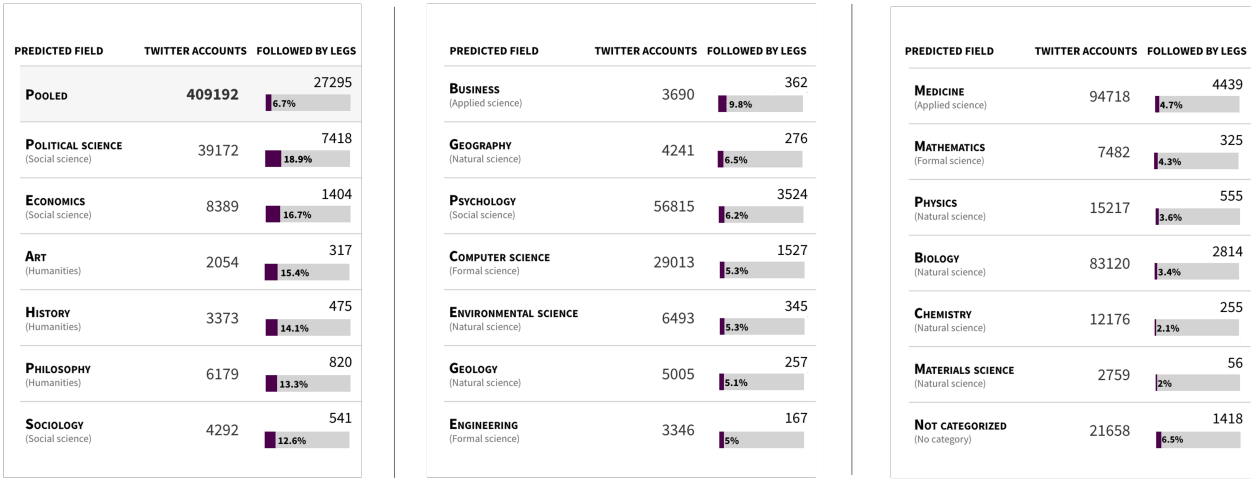
B Supporting Figures and Tables

Table B1: **Distribution of total and researcher-targeted legislator behaviors**

Behavior	Overall						With academic researchers					
	No. of legs	Mean	Median	SD	Max	Min	No. of Legs[1]	Mean	Median	SD	Max	Min
Following	3681	1764.0	990	3427.5	98546	1	3160 (85.8%)	29.1	10	53.9	748	1
Mentioning	3609	1103.6	560	1590.2	21726	1	2277 (63.1%)	13.2	5	34.3	800	1
Retweeting	3628	3876.5	1472	8040.4	200781	1	2663 (73.4%)	62.1	11	211.1	4901	1
Quote tweeting	3429	557.9	239	1036.3	23402	1	1885 (55%)	12.9	4	36.3	940	1
Replying	3598	1314.6	368	3314.5	65903	1	2018 (56.1%)	35.9	6	203.5	7980	1
Liking	3587	1808.0	1823	1255.0	3262	1	2833 (79%)	31.7	12	55.4	726	1

[1] The percentage represents the share of legislators in relation to the number that engage in such behavior. For instance, 86% of the 3681 legislators that follow accounts on Twitter have an academic researcher match.

Figure B1: **Overview of academic producers in the (Mongeon, Bowman and Costas, 2023) list**



PREDICTED FIELD	TWITTER ACCOUNTS	FOLLOWED BY LEGS
Pooled	**409192**	27295 (6.7%)
Political science (Social science)	39172	7418 (18.9%)
Economics (Social science)	8389	1404 (16.7%)
Art (Humanities)	2054	317 (15.4%)
History (Humanities)	3373	475 (14.1%)
Philosophy (Humanities)	6179	820 (13.3%)
Sociology (Social science)	4292	541 (12.6%)
Business (Applied science)	3690	362 (9.8%)
Geography (Natural science)	4241	276 (6.5%)
Psychology (Social science)	56815	3524 (6.2%)
Computer science (Formal science)	29013	1527 (5.3%)
Environmental science (Natural science)	6493	345 (5.3%)
Geology (Natural science)	5005	257 (5.1%)
Engineering (Formal science)	3346	167 (5%)
Medicine (Applied science)	94718	4439 (4.7%)
Mathematics (Formal science)	7482	325 (4.3%)
Physics (Natural science)	15217	555 (3.6%)
Biology (Natural science)	83120	2814 (3.4%)
Chemistry (Natural science)	12176	255 (2.1%)
Materials science (Natural science)	2759	56 (2%)
Not categorized (No category)	21658	1418 (6.5%)

Table B2: **Geographical distribution of researchers based on their last known institutional affiliation**

Country	No. of acc	Country	No. of acc	Country	No. of acc	Country	No. of acc	Country	No. of acc
United States	115101	Indonesia	621	Costa Rica	99	Namibia	20	Nicaragua	7
United Kingdom	59562	Egypt	608	Iraq	97	Burundi	19	Uzbekistan	7
No info	42970	Nigeria	585	Tunisia	96	Mali	19	Angola	6
Australia	19990	Bangladesh	529	Lithuania	95	Albania	18	Gibraltar	6
Canada	18589	Ecuador	508	Kuwait	93	Congo - Brazzaville	18	Kyrgyzstan	6
Spain	15604	Malaysia	504	Bulgaria	92	Mongolia	18	Liechtenstein	6
Germany	15362	Taiwan	504	Malawi	89	Yemen	18	Papua New Guinea	6
France	8825	Philippines	500	Oman	87	St. Kitts & Nevis	17	Somalia	6
Netherlands	8614	Kenya	496	North Macedonia	79	Burkina Faso	16	Tajikistan	6
India	8490	Lebanon	425	Rwanda	76	Réunion	16	Eswatini	5
Italy	8375	Peru	383	Ukraine	75	Brunei	15	Guinea	5
Brazil	5867	United Arab Emirates	365	Algeria	70	Greenland	15	Monaco	5
Switzerland	5527	Hungary	350	Zambia	59	Libya	15	Seychelles	5
Sweden	4826	Slovenia	350	Cameroon	58	Puerto Rico	15	Andorra	4
Ireland	4510	Uruguay	307	Hong Kong SAR China	58	Benin	13	Bhutan	4
Finland	4125	Ghana	294	Bahrain	55	Barbados	12	French Polynesia	4
Belgium	4070	Thailand	286	Kazakhstan	55	Grenada	12	Gabon	4
Denmark	3937	Nepal	282	Cuba	54	Guadeloupe	12	Samoa	4
China	3927	Qatar	275	Bolivi		Madagascar	12	Belize	3
Japan	3597	Romania	262	Cambodia	51	Montenegro	12	Bermuda	3
Norway	3293	Uganda	248	Palestinian Territories	48	Mozambique	12	Curaçao	3
Turkey	2662	Cyprus	226	Guatemala	45	New Caledonia	12	Falkland Islands	3
Mexico	2361	Luxembourg	222	Paraguay	45	Afghanistan	11	Palau	3
Portugal	2190	Croatia	216	Bosnia & Herzegovina	37	Azerbaijan	11	Cayman Islands	2
Austria	2115	Ethiopia	213	Senegal	35	El Salvador	11	Chad	2
South Africa	2102	Estonia	209	Moldova	32	Haiti	11	Guinea-Bissau	2
New Zealand	2037	Georgia	207	Sudan	32	Mauritius	11	Guyana	2
Israel	2029	Serbia	183	Armenia	31	Sierra Leone	11	Lesotho	2
Chile	1631	Iceland	171	Belarus	31	South Sudan	11	North Korea	2
Argentina	1630	Venezuela	163	Jamaica	31	Togo	11	Turkmenistan	2
Saudi Arabia	1509	Tanzania	155	Syria	31	Laos	10	Aruba	1
Colombia	1476	Morocco	144	Botswana	29	Niger	10	Cape Verde	1
Poland	1339	Sri Lanka	143	Fiji	29	Svalbard & Jan Mayen	10	Isle of Man	1
Singapore	1113	Slovakia	141	Gambia	27	Bahamas	9	Liberia	1
Greece	1034	Jordan	118	Côte d'Ivoire	25	Faroe Islands	9	Micronesia (Federated States of)	1
South Korea	1004	Vietnam	114	Trinidad & Tobago	25	Myanmar (Burma)	9	Montserrat	1
Pakistan	990	Panama	105	Antigua & Barbuda	23	French Guiana	8	San Marino	1
Czechia	902	Latvia	102	Congo - Kinshasa	23	Jersey	7	St. Lucia	1
Russia	738	Malta	102	Dominican Republic	22	Maldives	7	Suriname	1
Iran	703	Zimbabwe	101	Honduras	20				

Figure B2: **Percentage of overall Twitter followees matching users in the academic researcher list.**

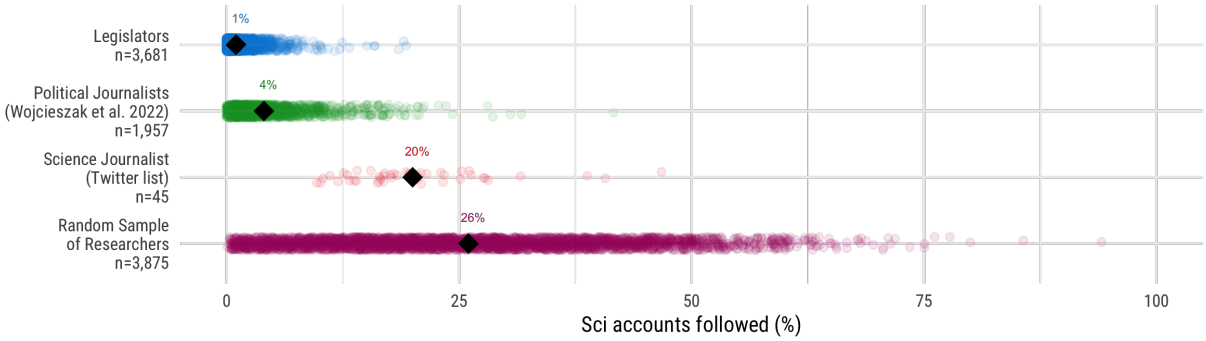


Figure B3: **Google Topic interest of early COVID related terms**

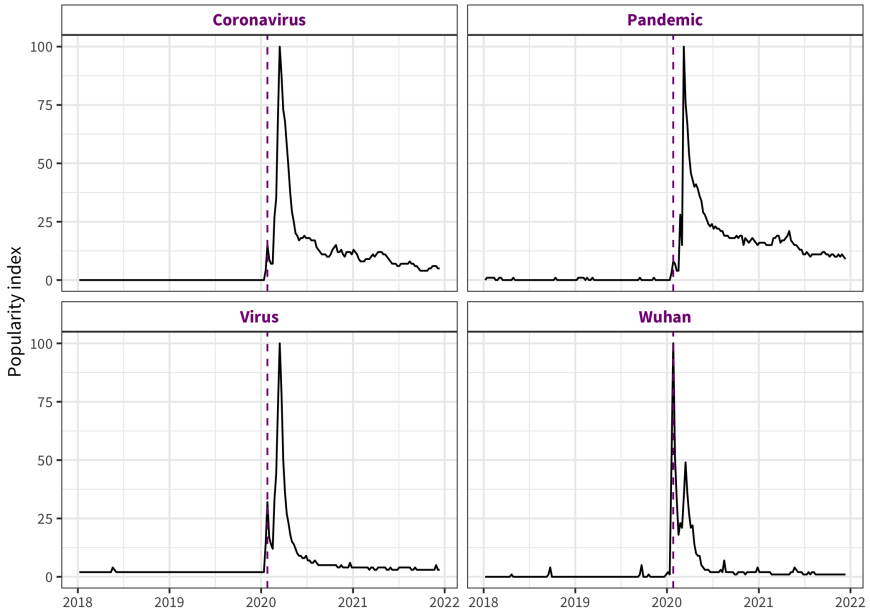


Table B3: Academic researchers with the largest increase in legislator followers following the declaration of COVID

Twitter handle	Name	Scientific branch	Last known affiliation	Base	Gained	Δ increase
@c_drosten	Christian Drosten	Natural science	Humboldt-Universität zu Berlin	52	102	1.96x
@DrTedros	Tedros Adhanom Ghebreyesus	Applied science	World Health Organization	24	52	2.17x
@uksciencechief	Patrick Vallance	Applied science	GlaxoSmithKline	35	50	1.43x
@devisridhar	Devi Sridhar	Applied science	University of Edinburgh	5	27	5.4x
@hendrikstreeck	Hendrik Streeck	No category	—	16	23	1.44x
@d_spiegel	David Spiegelhalter	Formal science	University of Cambridge	1	18	18x
@ronan_glynn	Robert J. Glynn	Applied science	Brigham and Women's Hospital	8	16	2x
@jasonleitch	J. Leitch	Social science	Scottish Government	5	15	3x
@GabrielScally	Gabriel Scally	Applied science	University of Bristol	1	15	15x
@globalhlthtwit	Anthony Costello	Applied science	UCL Institute of Child Health	3	15	5x
@JeremyFarrar	Jeremy Farrar	Applied science	Wellcome Trust	4	14	3.5x
@oriolmitja	Oriol Mitjà	Applied science	Fight AIDS Foundation	0	14	—
@anandMenon1	Anand Menon	Social science	Innovate UK	8	13	1.62x
@DrEricDing	Eric L. Ding	Applied science	Microclinic International	3	13	4.33x
@adamjkucharski	Adam J. Kucharski	Applied science	London School of Hygiene & Tropical Medicine	10	13	1.3x
@claire_ainsley	Claire Ainsley	Formal science	—	0	12	—
@mlipsitch	Marc Lipsitch	Applied science	Harvard University	4	12	3x
@CiesekSandra	Sandra Ciesek	Applied science	German Center for Infection Research	0	11	—
@CathCalderwood1	Catherine Calderwood	Applied science	Scottish Government	1	11	11x
@ASlavitt	Andrew Slavitt	Applied science	Centers for Medicare and Medicaid Services	4	10	2.5x
@pia_lamberty	Pia Lamberty	Social science	Johannes Gutenberg University of Mainz	0	10	—
@adam_tooze	Adam Tooze	Social science	Columbia University	4	10	2.5x
@GrimmVeronika	Veronika Grimm	Social science	University of Erlangen-Nuremberg	4	10	2.5x
@hans_kluge	Hans Kluge	Applied science	World Health Organization Regional Office for Europe	0	10	—
@miotei	Miguel Otero-Iglesias	Social science	Real Instituto Elcano	0	9	—

Table B4: Academic researchers with the most retweets by legislators following the declaration of COVID

Twitter handle	Name	Scientific branch	Last known affiliation	# pre	# post	# legs
@G_Caballero_M	Gonzalo Caballero-Miguez	Social science	Universidade de Vigo	0	261	11
@TorstenBell	Torsten Bell	Social science	—	0	189	53
@DrTedros	Tedros Adhanom Ghebreyesus	Applied science	World Health Organization	0	109	78
@jasonleitch	J. Leitch	Social science	Scottish Government	0	108	28
@josepcosta	Josep Costa	Social science	—	0	105	8
@perezlozano	Lluis Perez-Lozano	Social science	Pompeu Fabra University	0	88	10
@cblackst	Cindy Blackstock	Social science	McGill University	0	81	12
@premnsikka	Prem Sikka	Applied science	University of Essex	0	74	9
@janephilpott	Jane Philpott	Applied science	University of Toronto	0	74	18
@Orla_Hegarty	Orla Hegarty	Social science	University College Dublin	0	69	12
@martamartirio	Marta Martín-Llaguno	Social science	University of Alicante	0	69	11
@c_drosten	Christian Drosten	Natural science	Humboldt-Universität zu Berlin	0	68	43
@XSalaimartin	Xavier Sala-i-Martin	Social science	MBIA	0	66	6
@juanrallo	Juan Ramón Rallo	Humanities	IE University	0	63	28
@RAWnGreen	Julia K. Green	Natural science	University of California, Berkeley	17	63	1
@uksciencechief	Patrick Vallance	Applied science	GlaxoSmithKline	0	62	40
@doctor_oxford	Rachel Clarke	Applied science	University of Oxford	0	56	30
@RZitelmann	Rainer Zitelmann	Social science	National Coalition of Independent Scholars	0	55	6
@ronan_glynn	Robert J. Glynn	Applied science	Brigham and Women's Hospital	0	55	18
@ZulmaCucunuba	Zulma M. Cucunubá	Applied science	Imperial College London	0	52	4
@JaimePalomera	Jaime Palomera	Social science	University of Barcelona	0	51	13
@GabrielScally	Gabriel Scally	Applied science	University of Bristol	0	49	22
@schnellenbachj	Jan Schnellenbach	Social science	Brandenburg University of Technology	0	49	3
@gebelque	Germà Bel	Social science	University of Barcelona	0	44	5
@jaumepadros	J. Padrós-Selma	Social science	West Virginia University College of Law	0	44	11

Table B5: Academic researchers with the most mentions by legislators following the declaration of COVID

Twitter handle	Name	Scientific branch	Last known affiliation	# pre	# post	# legs
@G_Caballero_M	Gonzalo Caballero-Miguez	Social science	Universidade de Vigo	0	52	9
@DrTedros	Tedros Adhanom Ghebreyesus	Applied science	World Health Organization	0	25	13
@huw4ogmore	Harriet Harden-Davies	Social science	University of Wollongong	1	20	1
@CDCDirector	Rochelle P Walensky	Social science	Centers for Disease Control and Prevention	0	19	15
@JoMalagon	Jonathan Malagon	No category	—	0	19	11
@c_drosten	Christian Drosten	Natural science	Humboldt-Universität zu Berlin	0	14	14
@SteveFDA	Stephen M. Hahn	Applied science	Annenberg Public Policy Center	0	14	10
@Martin_M_Guzman	Martin Guzman	Social science	Columbia University	0	12	8
@ilariacapua	Ilaria Capua	Applied science	University of Florida Health	0	11	5
@samuel_garcias	—	No category	—	0	10	8
@ASlavitt	Andrew Slavitt	Applied science	Centers for Medicare and Medicaid Services	0	8	3
@jasonleitch	J. Leitch	Social science	Scottish Government	0	8	6
@uksciencechief	Patrick Vallance	Applied science	GlaxoSmithKline	0	8	8
@ashishkjha	Ashish K. Jha	Applied science	Brown University	0	7	1
@JanezPotocnik22	Janez Potočnik	Social science	United Nations Environment Programme	0	6	1
@DrJV75	Justin Varney	Applied science	Public Health England	3	6	1
@hendrikstreeck	—	No category	—	0	6	6
@gabriel_zucman	Gabriel Zucman	Social science	University of California, Berkeley	0	6	3
@WRicciardi	—	No category	—	0	6	4
@Healthmac	Christopher Mackie	Applied science	Middlesex London Health Unit	0	6	3
@AlanDersh	Alan M. Dershowitz	Social science	—	0	6	2
@CarloMasala1	Carlo Masala	Social science	Bundeswehr University Munich	0	6	3
@GaviSeth	Seth Berkley	Applied science	Gavi	0	6	4
@lugaricano	Luis Garicano	Social science	IE University	0	5	4
@MarvinJRees	Marvin Rees	Social science	—	0	5	4

Table B6: Academic researchers with the most quotes by legislators following the declaration of COVID

Twitter handle	**Name**	**Scientific branch**	**Last known affiliation**	**# pre**	**# post**	**# legs**
@TorstenBell	Torsten Bell	Social science	—	0	33	31
@janephilpott	Jane Philpott	Applied science	University of Toronto	0	23	17
@c_drosten	Christian Drosten	Natural science	Humboldt-Universität zu Berlin	0	22	10
@DrTedros	Tedros Adhanom Ghebreyesus	Applied science	World Health Organization	0	20	18
@G_Caballero_M	Gonzalo Caballero-Miguez	Social science	Universidade de Vigo	8	17	2
@hans_kluge	Hans Kluge	Applied science	World Health Organization Regional Office for Europe	0	14	13
@ASlavitt	Andrew Slavitt	Applied science	Centers for Medicare and Medicaid Services	0	13	10
@juanrallo	Juan Ramón Rallo	Humanities	IE University	0	11	8
@Orla_Hegarty	Orla Hegarty	Social science	University College Dublin	0	10	4
@cblackst	Cindy Blackstock	Social science	McGill University	9	10	3
@jdportes	Jonathan Portes	Social science	King's College London	0	9	5
@doctor_oxford	Rachel Clarke	Applied science	University of Oxford	7	9	6
@AlanDersh	Alan M. Dershowitz	Social science	—	0	8	4
@ronan_glynn	Robert J. Glynn	Applied science	Brigham and Women's Hospital	0	8	5
@ianbremmer	Ian A. (Ian Arthur) Bremmer	Social science	Hoover Institution	0	8	8
@MacaesBruno	Bruno Macaes	Social science	—	0	7	2
@GabrielScally	Gabriel Scally	Applied science	University of Bristol	0	7	4
@uksciencechief	Patrick Vallance	Applied science	GlaxoSmithKline	0	7	6
@nntaleb	Nassim Nicholas Taleb	Formal science	New York University	0	7	3
@oriolmitja	Oriol Mitjà	Applied science	Fight AIDS Foundation	0	7	3
@Miguel__Lorente	Miguel Lorente-Acosta	Humanities	University of Granada	5	7	1
@MaxCRoser	Max Roser	Social science	Center for Global Development	0	7	5
@jasonleitch	J. Leitch	Social science	Scottish Government	0	6	6
@premnsikka	Prem Sikka	Applied science	University of Essex	0	6	6
@jsuedekum	Jens Suedekum	Social science	Heinrich Heine University Düsseldorf	0	6	5

Table B7: Academic researchers with the most replies by legislators following the declaration of COVID

Twitter handle	**Name**	**Scientific branch**	**Last known affiliation**	**# pre**	**# post**	**# legs**
@CarloMasala1	Carlo Masala	Social science	Bundeswehr University Munich	36	69	10
@BachmannRudi	Ruediger Bachmann	Social science	University of Notre Dame	0	33	4
@SDullien	Sebastian Dullien	Social science	Hans Böckler Foundation	0	29	6
@mquijoux	Maxime Quijoux	Social science	Laboratoire Interdisciplinaire pour la Sociologie Economique	6	21	1
@StephanieCarvin	Stephanie Carvin	Social science	University of Ottawa	0	21	5
@thesismum	Anja Katharina Peters	Social science	—	0	17	4
@AnMailleach	Eoin O'Malley	Social science	Dublin City University	14	16	9
@AchimTruger	Achim Truger	Social science	University of Duisburg-Essen	0	16	5
@jsuedekum	Jens Suedekum	Social science	Heinrich Heine University Düsseldorf	0	15	3
@m_kubiciel	Michael Kubiciel	Social science	University of Cologne	0	15	4
@DrGrandMal	Dennis Müller	Natural science	Heidelberg University	0	14	5
@HerrLuehmann	Michael Lühmann	Natural science	—	0	13	4
@Lars_Feld	Lars P. Feld	Social science	Walter Eucken Institut	0	13	7
@gavinjdaly	Gavin Daly	Social science	National University of Ireland, Maynooth	0	11	4
@tatterededge	Lelainia Lloyd	Social science	—	4	11	1
@PolProfSteve	Steven Fielding	Social science	University of Nottingham	0	11	7
@lofferg	Christopher Gohl	Social science	Leibniz-Institut für Wissensmedien	0	10	3
@JuergenZimmerer	Jürgen Zimmerer	Social science	University of Sheffield	2	10	1
@wargonm	Mathias Wargon	Applied science	Centre Hospitalier Saint-Denis	0	10	5
@devisridhar	Devi Sridhar	Applied science	University of Edinburgh	0	9	2
@DannyFiler	Danny Filer	Applied science	University College London	0	9	3
@cataperezcorrea	Catalina Pérez Correa	Social science	University of Iceland	1	9	1
@Puettmann_Bonn	Andreas Püttmann	Social science	—	0	9	4
@drcrouchback	Paul W Keeley	Applied science	University of Glasgow	1	9	1
@T_Ortelt	Tobias R. Ortelt	Formal science	TU Dortmund University	0	9	4

Table B8: Political parties and families by country

Country	Party	Family	Country	Party	Family
Argentina	Frente PRO	CON	France	DVG	SOC
Argentina	Unión Cívica Radical	SOC	France	POI	LEF
Brazil	MDB	SOC	France	Horizons-CCB	CON
Brazil	UNIÃO	DIV	France	LR-Nouvelle énergie	CON
Brazil	PL	NAT	France	DVG	ETH
Brazil	PSD	LIB	France	UDI	CON
Brazil	REDE (PSOL REDE)	ECO	France	Tavini	LEF
Brazil	PSDB (PSDB Cidadania)	CHR	France	LREM-PE	LIB
Brazil	PT (FE Brasil)	LEF	France	LREM-GNC	LIB
Brazil	PODE	SIP	France	LREM, Cap21	LIB
Brazil	Republicanos	CON	France	GUSR	ETH
Brazil	PDT	SOC	France	PRG	MI
Brazil	Cidadania (PSDB Cidadania)	CHR	France	LREM - TdP	LIB
Brazil	PSB	SOC	France	PNC	ETH
Brazil	PP	CON	France	REG	ETH
Brazil	PSC	NAT	France	PS	SOC
Brazil	PROS	DIV	France	DVC	LIB
Canada	Liberal	LIB	France	LREM, EC	LIB
Canada	New Democratic	SOC	France	DVD	MI
Canada	Green	ECO	Germany	CDU/CSU (CDU)	CHR
Canada	Conservative	CON	Germany	Grüne	ECO
Canada	Bloc Québécois	SIP	Germany	FDP	LIB
Canada	Independent	MI	Germany	SPD	SOC
Colombia	CD	CON	Germany	Linke	LEF
Colombia	MAIS	ETH	Germany	CDU/CSU (CSU)	CHR
Colombia	AV	ECO	Germany	AfD	NAT
Colombia	PUG	SIP	Germany	Fraktionslos	MI
Colombia	CH	LEF	Ireland	Fianna Fáil	CON
Colombia	CR	LIB	Ireland	Fine Gael	CHR
Colombia	MAIS	ETH	Ireland	Sinn Féin	SIP
Colombia	UP	LEF	Ireland	Green Party	ECO
Colombia	PLC	LIB	Ireland	Independent	MI
Colombia	PDA	LEF	Ireland	Solidarity–People Before Profit	LEF
Colombia	MIRA	NAT	Ireland	Labour	SOC
Colombia	AV	ECO	Ireland	Aontú	CHR
Colombia	ADA	ETH	Ireland	Social Democrats	SOC
Colombia	ASI	ETH	Ireland	Independents 4 Change	DIV
Colombia	COM	LEF	Italy	PARTITO DEMOCRATICO - ITALIA DEMOCRATICA E PROGRESSISTA	SOC
Colombia	VO	ECO	Italy	FRATELLI D'ITALIA	CON
Colombia	PC	CON	Italy	LEGA - SALVINI PREMIER	NAT
Colombia	ASI	ETH	Italy	AZIONE - ITALIA VIVA - RENEW EUROPE	DIV
Colombia	CJL	NAT	Italy	FORZA ITALIA - BERLUSCONI PRESIDENTE - PPE	CON
Colombia	AICO	ETH	Italy	MISTO-+EUROPA	SIP
France	LREM	LIB	Italy	MOVIMENTO 5 STELLE	SIP
France	G.s	ECO	Italy	NOI MODERATI (NOI CON L'ITALIA, CORAGGIO ITALIA, UDC, ITALIA AL CENTRO)-MAIE	DIV
France	TdP	LIB	Italy	ALLEANZA VERDI E SINISTRA	ECO
France	DVD	LIB	Italy	MISTO-MINORANZE LINGUISTICHE	ETH
France	LR	CON	Mexico	PAN	CON
France	RN	NAT	Mexico	Morena	LEF
France	MoDem	LIB	Mexico	Sin Partido	MI
France	LFI	LEF	Mexico	PRI	SOC
France	DVC	LIB	Mexico	Partido Movimiento Ciudadano	SOC
France	EELV	ECO	Mexico	Partido Encuentro Social	CON
France	Horizons	CON	Mexico	PRD	SOC
France	PS	SOC	Mexico	Partido Verde	ECO
France	PCF	LEF	Mexico	Worker's Party	LEF
France	LREM-TdP	LIB	Mexico	Movimiento Ciudadano	SOC
France	LND	ECO	Spain	PSOE	SOC
France	PRV	LIB	Spain	JxCat-JUNTS (Junts)	ETH
France	LREM-EC	LIB	Spain	EC-UP	ETH
France	PRV	ETH	Spain	PSC-PSOE	SOC
France	Agir	LIB	Spain	Vox	NAT
France	DVC	ETH	Spain	ERC-S	ETH
France	FP	LIB	Spain	PSE-EE-PSOE	SOC
France	DVG	MI	Spain	PsdeG-PSOE	SOC
France	LC	ETH	Spain	EH Bildu	ETH
France	LFI-E!	LEF	Spain	UP	ETH
France	REV	LEF	Spain	PP	CON
France	FaC	ETH	Spain	ECP-GUAYEM EL CANVI	ETH
France	MDES	LEF	Spain	MÁS PAÍS-EQUO	LEF
France	EÉLV	ECO	Spain	NA+	ETH
France	PPDG	SOC	Spain	EAJ-PNV	ETH
France	LREM	LIB	Spain	JxCat-JUNTS (PDeCAT)	ETH
France	Agir	CON	Spain	Cs	LIB
France	LR	CON	Spain	CUP-PR	ETH
France	DVG	LEF	Spain	MÉS COMPROMÍS	ETH
France	GE	ECO	Spain	BNG	ETH
France	DVD	CON	Spain	CCa-PNC-NC	ETH
France	CE	LIB	Spain	UP	ETH
France	DLF	MI	Spain	Cs	LIB
France	LR-A droite !	CON	Spain	PP-FORO	CON

Table B8: Political parties and families by country

Country	Party	Family	Country	Party	Family
France	RR	LIB	Spain	NC-CCa-PNC	ETH
France	FGPS	SOC	Spain	PP-FORO	CON
France	EXD	MI	Spain	PRC	ETH
France	LFI-PG	LEF	UK	Labour Co-operative	SOC
France	LR-SL	CON	UK	Conservative	CON
France	DVD	LIB	UK	Labour	SOC
France	DVD	ETH	UK	Liberal Democrats	LIB
France	PRV	LIB	UK	Sinn Féin	LEF
France	LS	NAT	UK	Scottish National	ETH
France	LFI-PD	LEF	UK	Green	ECO
France	LREM-RSM	LIB	UK	SDLP	SOC
France	PLR	LEF	UK	Plaid Cymru	ETH
France	UDI	ETH	UK	DUP	ETH
France	Horizons	LIB	UK	Alliance	LIB
France	Horizons-LREM	CON	UK	Speaker	CON
France	LREM	CON	UK	SNP	ETH
France	LFI-RÉ974	LEF	US	Democratic	SOC
France	PRV-LREM	LIB	US	Republican	CON
France	PPM	SOC	US	Independent	MI

C Supporting analyses

C.1 Estimated effects of legislator and legislature characteristics on the proportion of researchers on behaviors

These are results from linear mixed-effects models with legislature random effects with age (under 35), party family (other), country region (Europe), system (presidential), and Q1 for followers and friends as references for categorical variables. Panel a presents the coefficients with 80% and 95% confidence intervals. The conditional predictions are computed with numeric covariates are held at their means and the other covariates at their modes: no research degree, presidential, European, male, 45-54, Conservative party, and the first quartile of followers and friends.

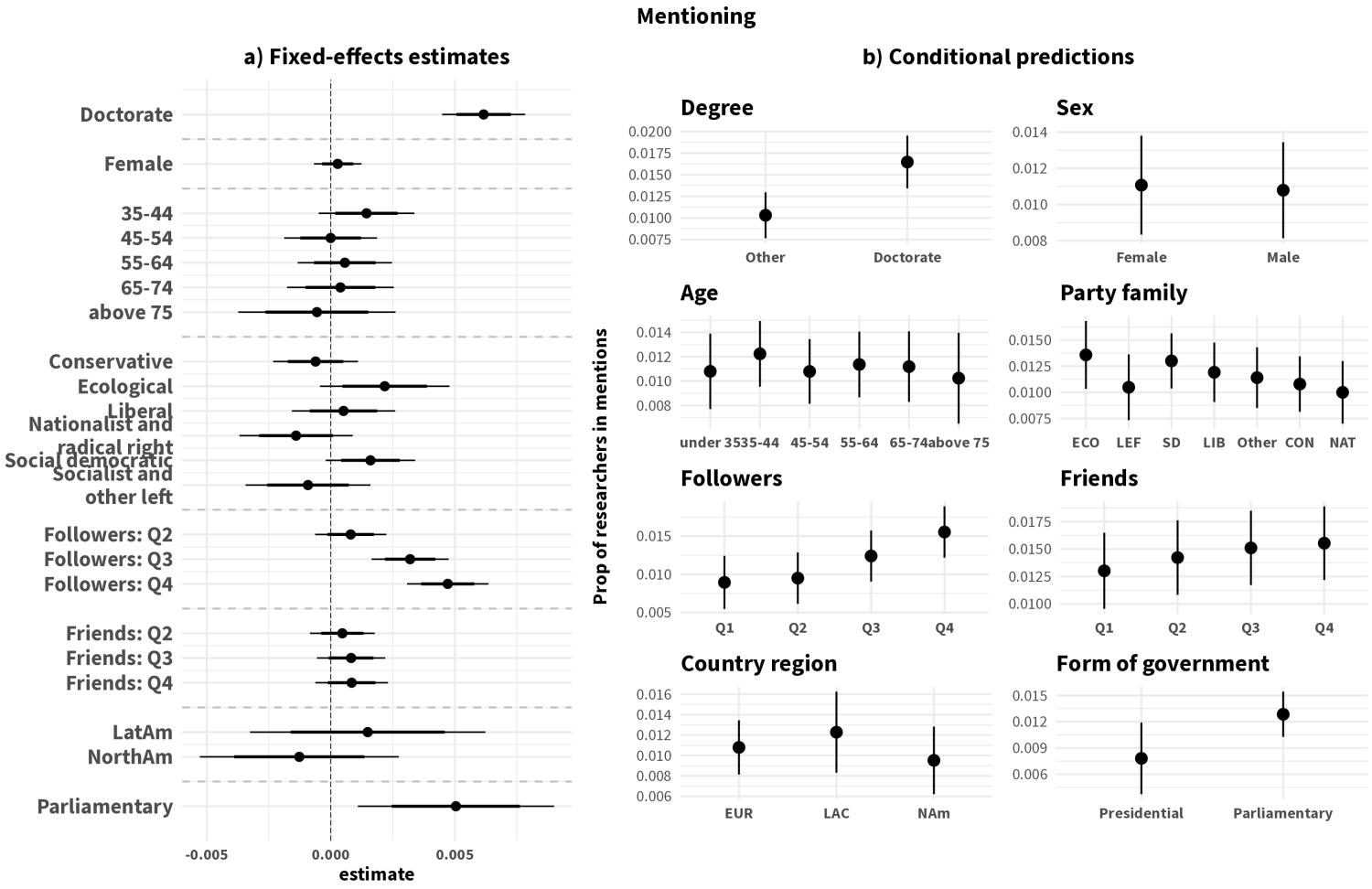


Figure C1: **Estimated effects of legislator and legislature characteristics on the proportion of mentions of researchers**

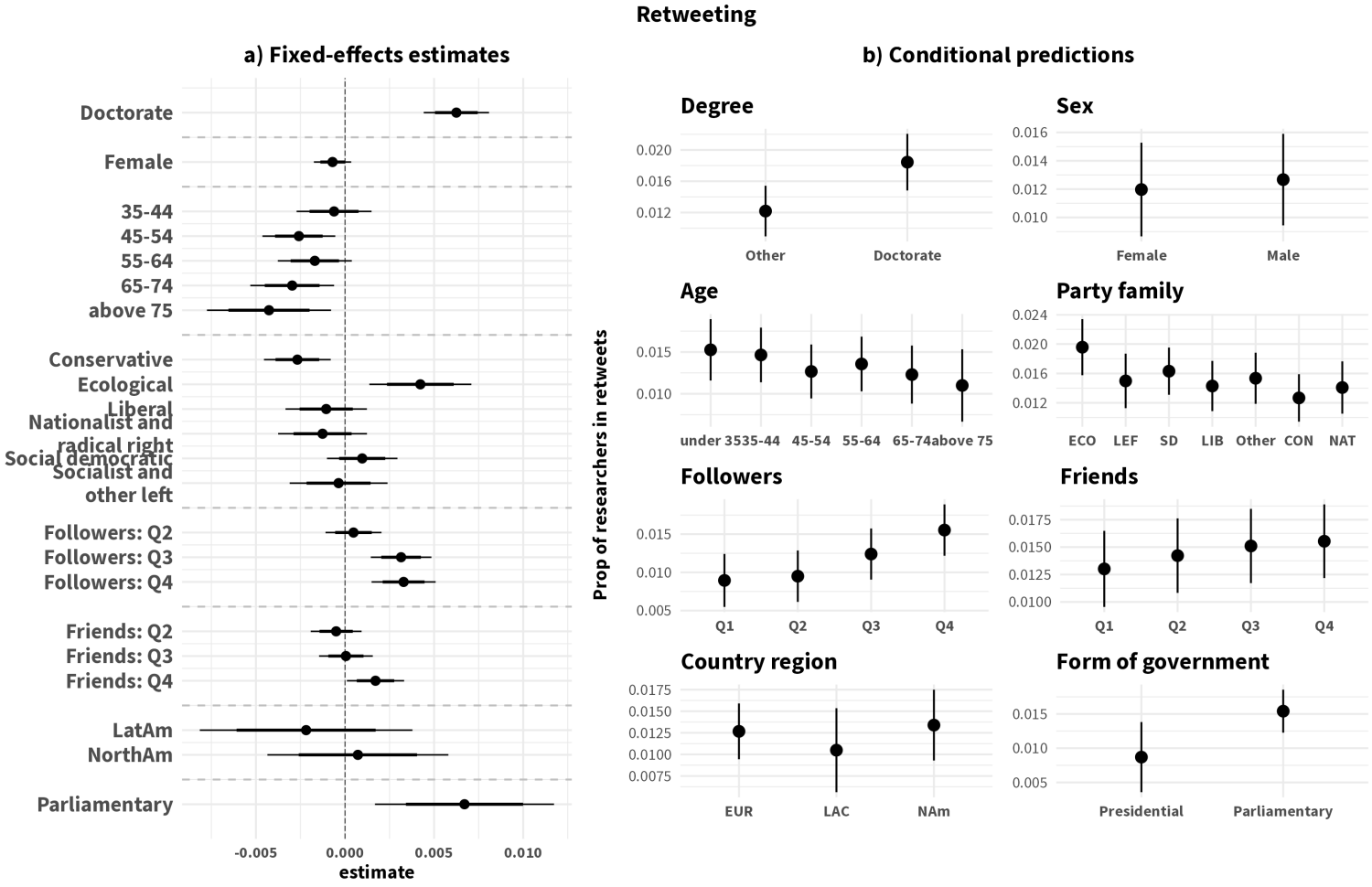


Figure C2: **Estimated effects of legislator and legislature characteristics on the proportion of retweeting of researchers**

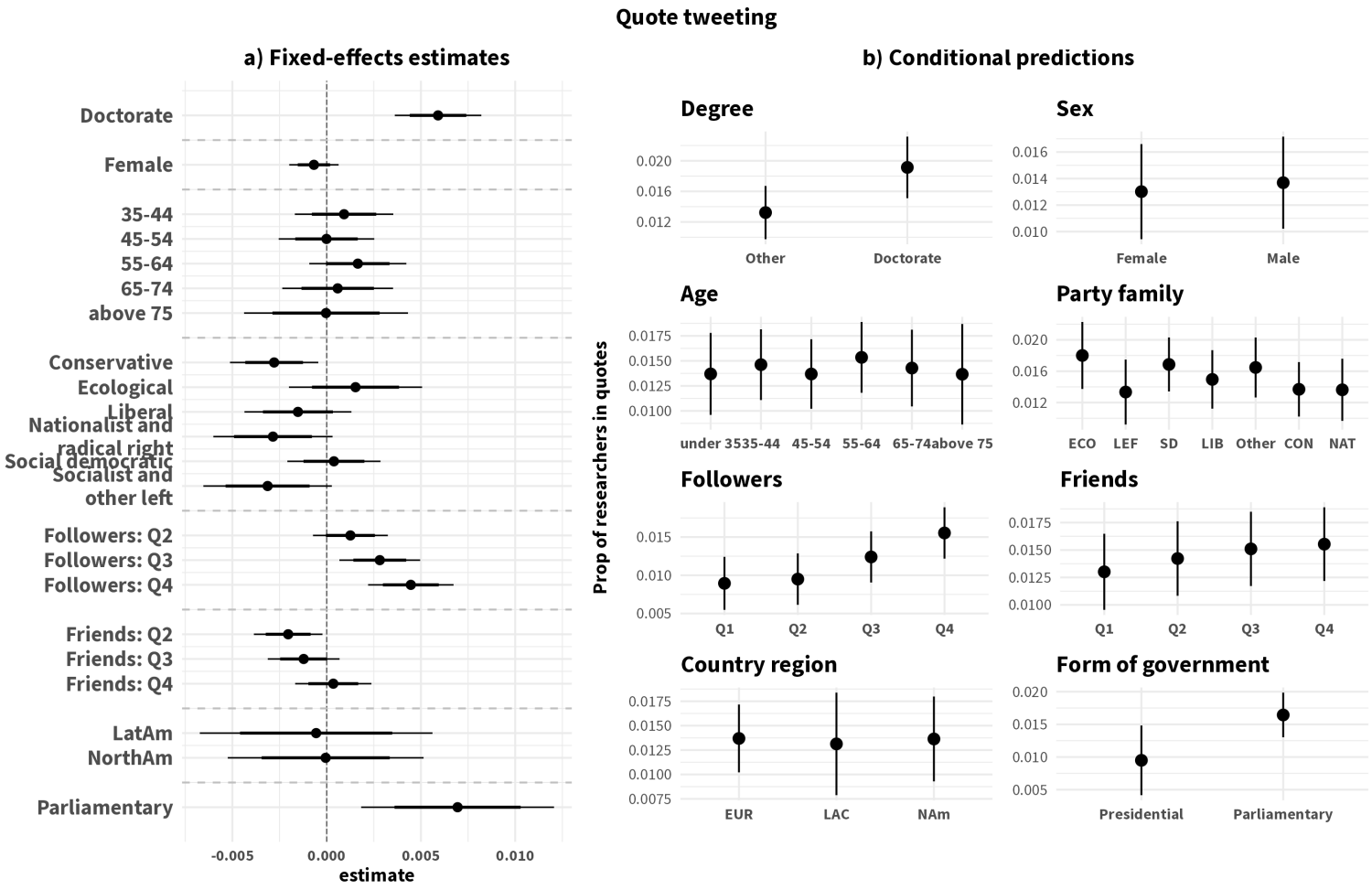


Figure C3: **Estimated effects of legislator and legislature characteristics on the proportion of quoting of researchers**

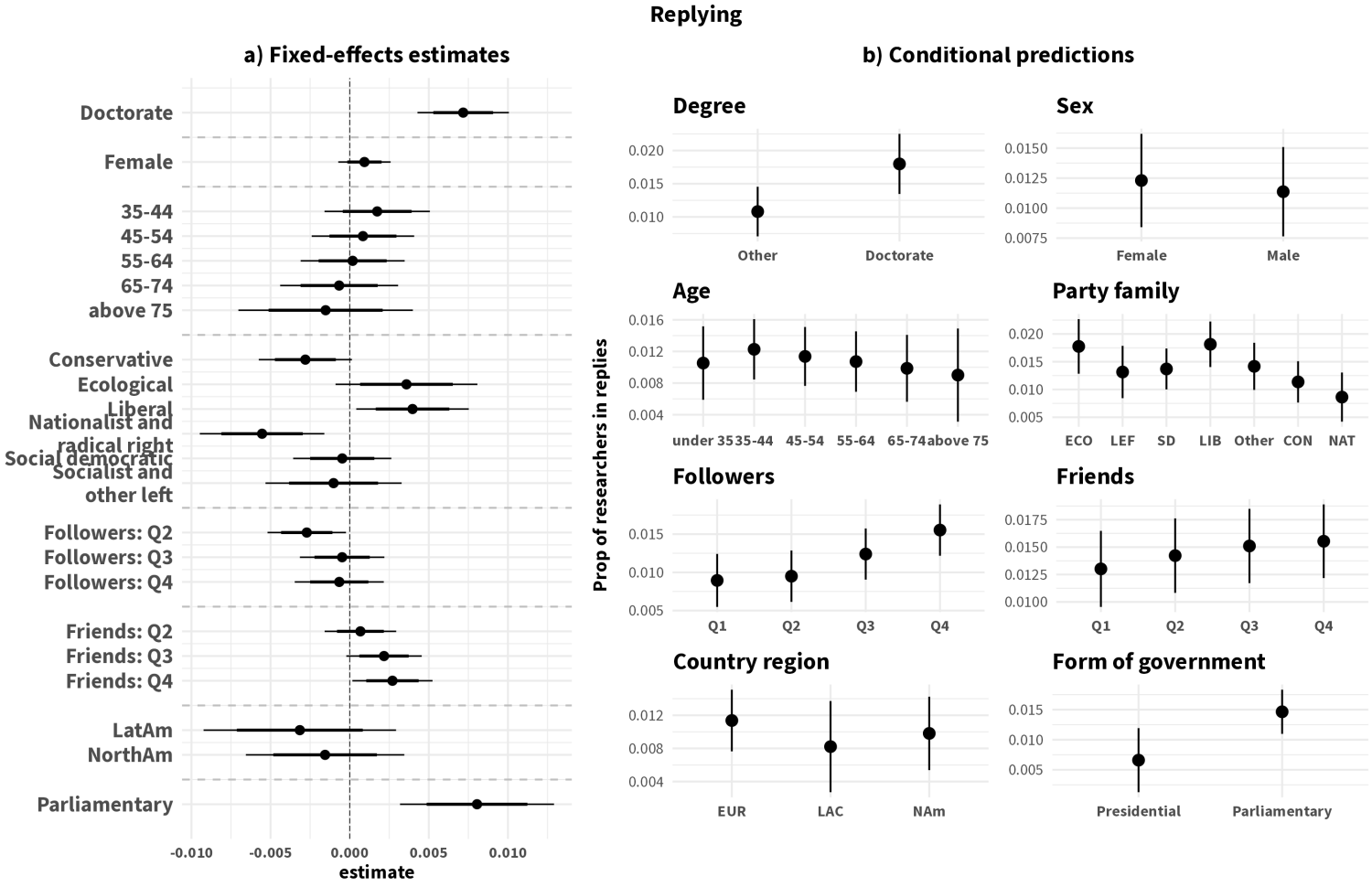


Figure C4: **Estimated effects of legislator and legislature characteristics on the proportion of replies to researchers**

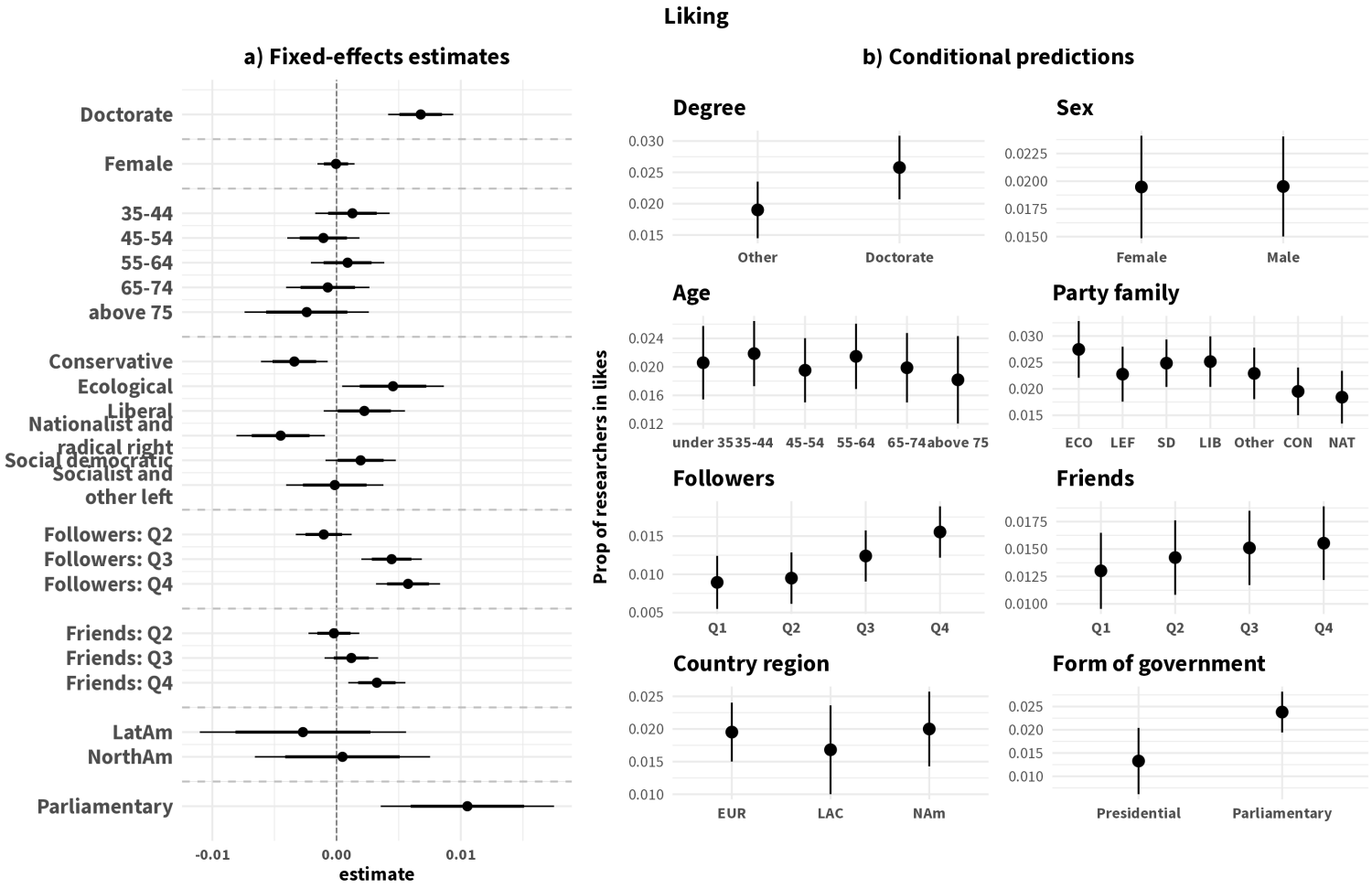


Figure C5: **Estimated effects of legislator and legislature characteristics on the proportion of likes of researcher Tweets**

C.2 Estimated effects of legislator and legislature characteristics on the absolute number of researchers on behaviors

These are results from linear mixed-effects models with legislature random effects with age (under 35), party family (other), country region (Europe), system (presidential), and Q1 for followers and friends as references for categorical variables. Panel a presents the coefficients with 80% and 95% confidence intervals. The conditional predictions are computed with numeric covariates are held at their means and the other covariates at their modes: no research degree, presidential, European, male, 45-54, Conservative party, and the first quartile of followers and friends.

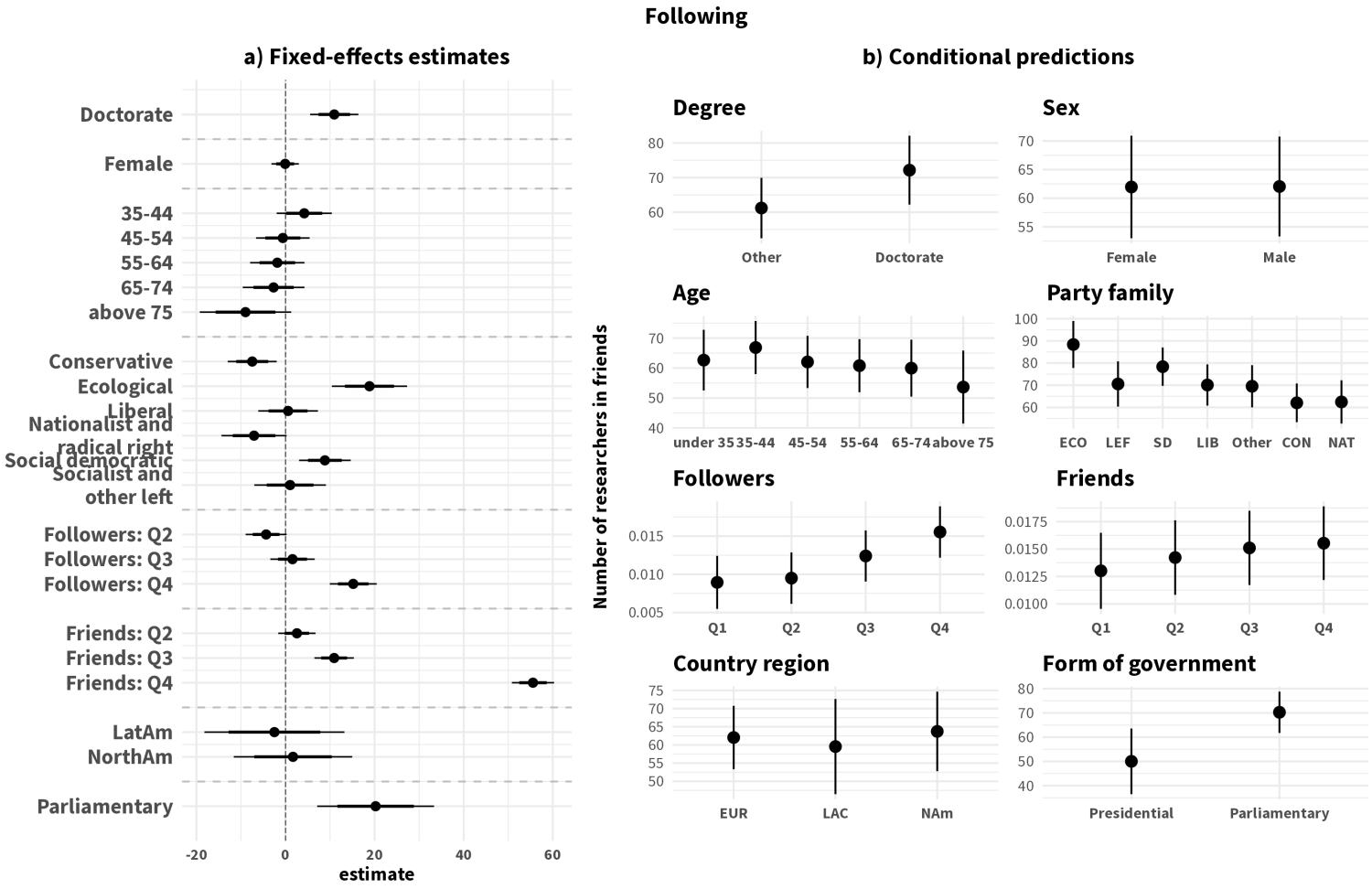


Figure C6: **Estimated effects of legislator and legislature characteristics on the absolute number of friends of researcher Tweets**

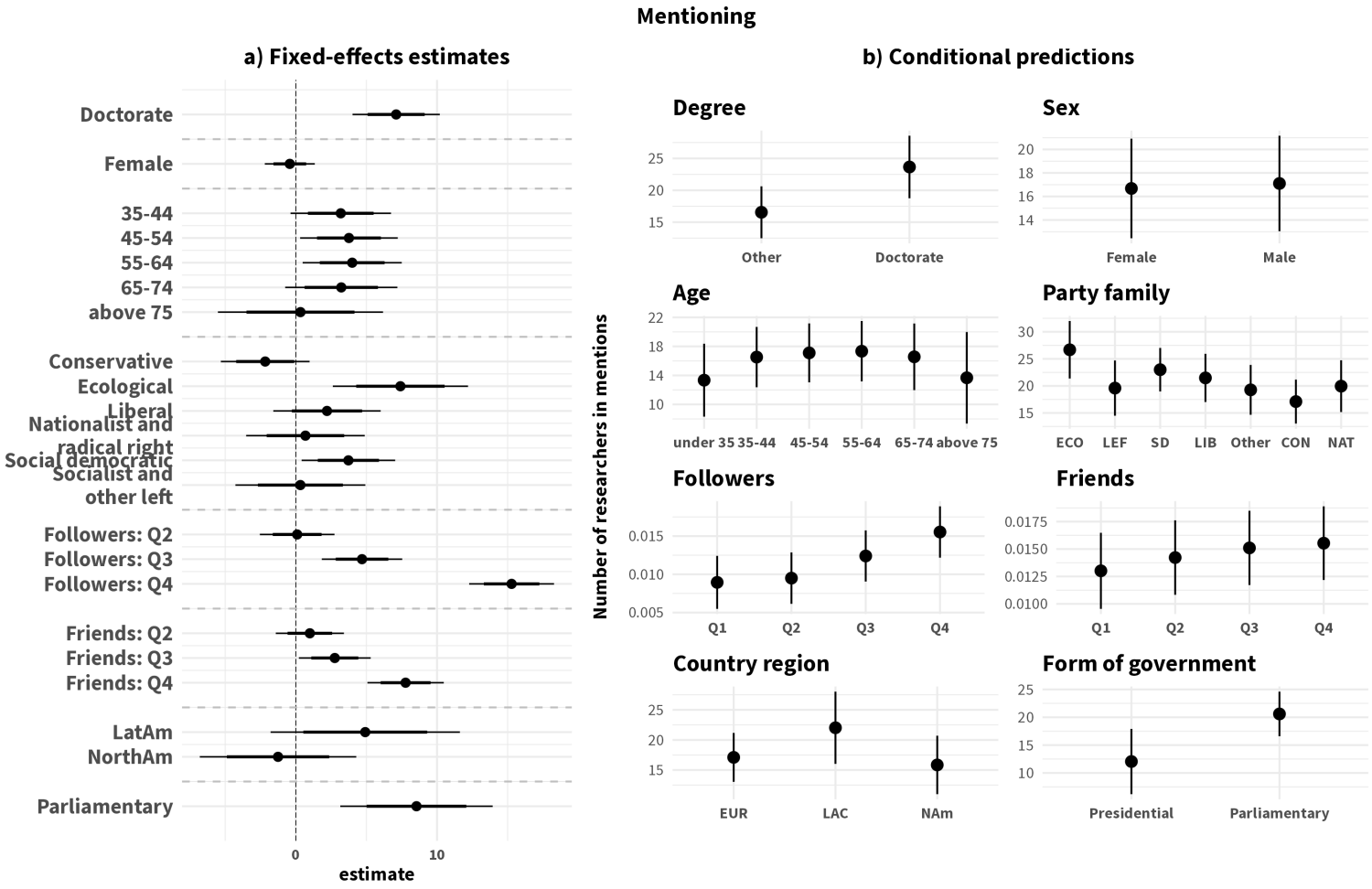


Figure C7: **Estimated effects of legislator and legislature characteristics on the absolute number of mentions of researchers**

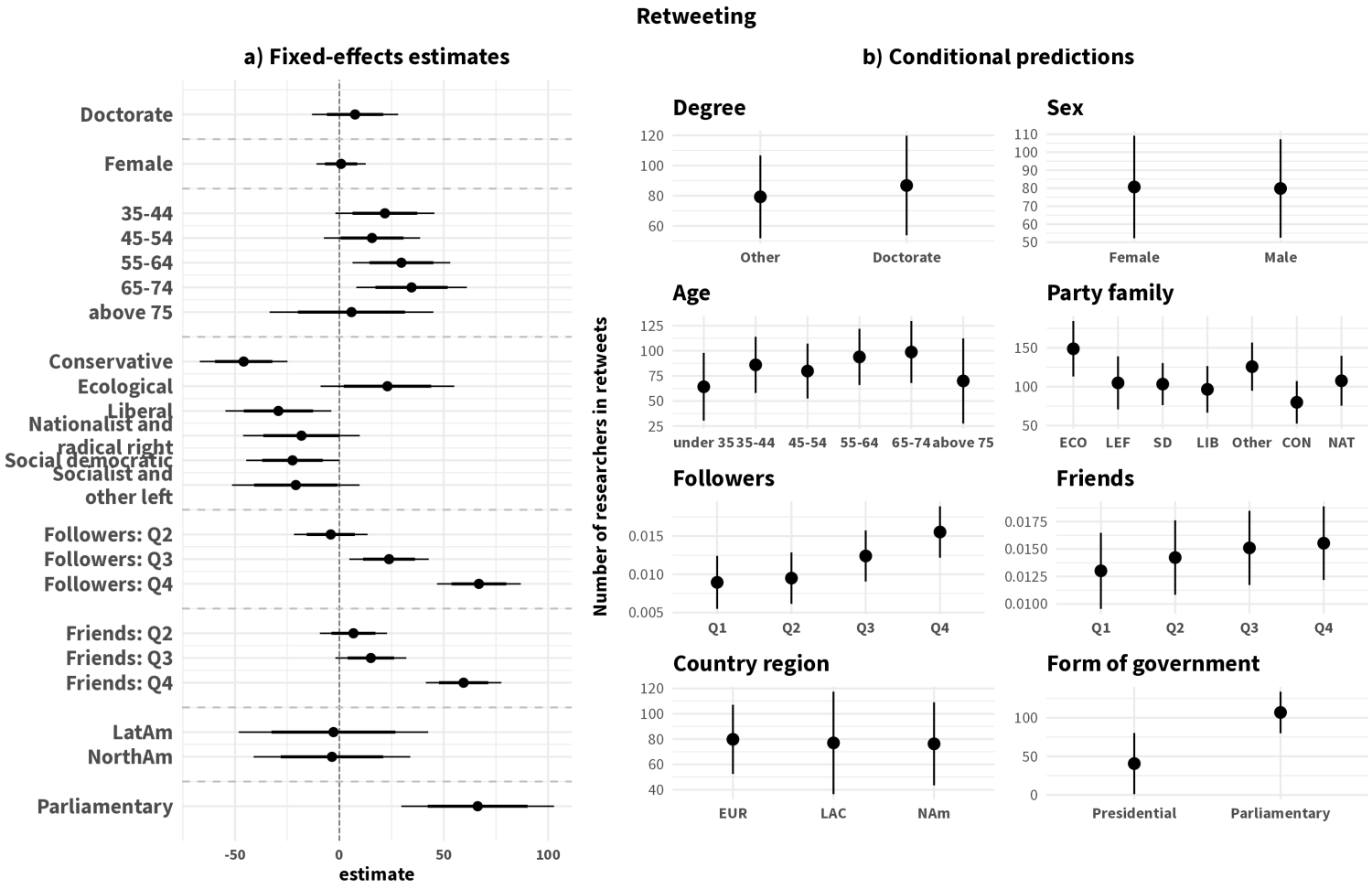


Figure C8: **Estimated effects of legislator and legislature characteristics on the absolute number of retweeting of researchers**

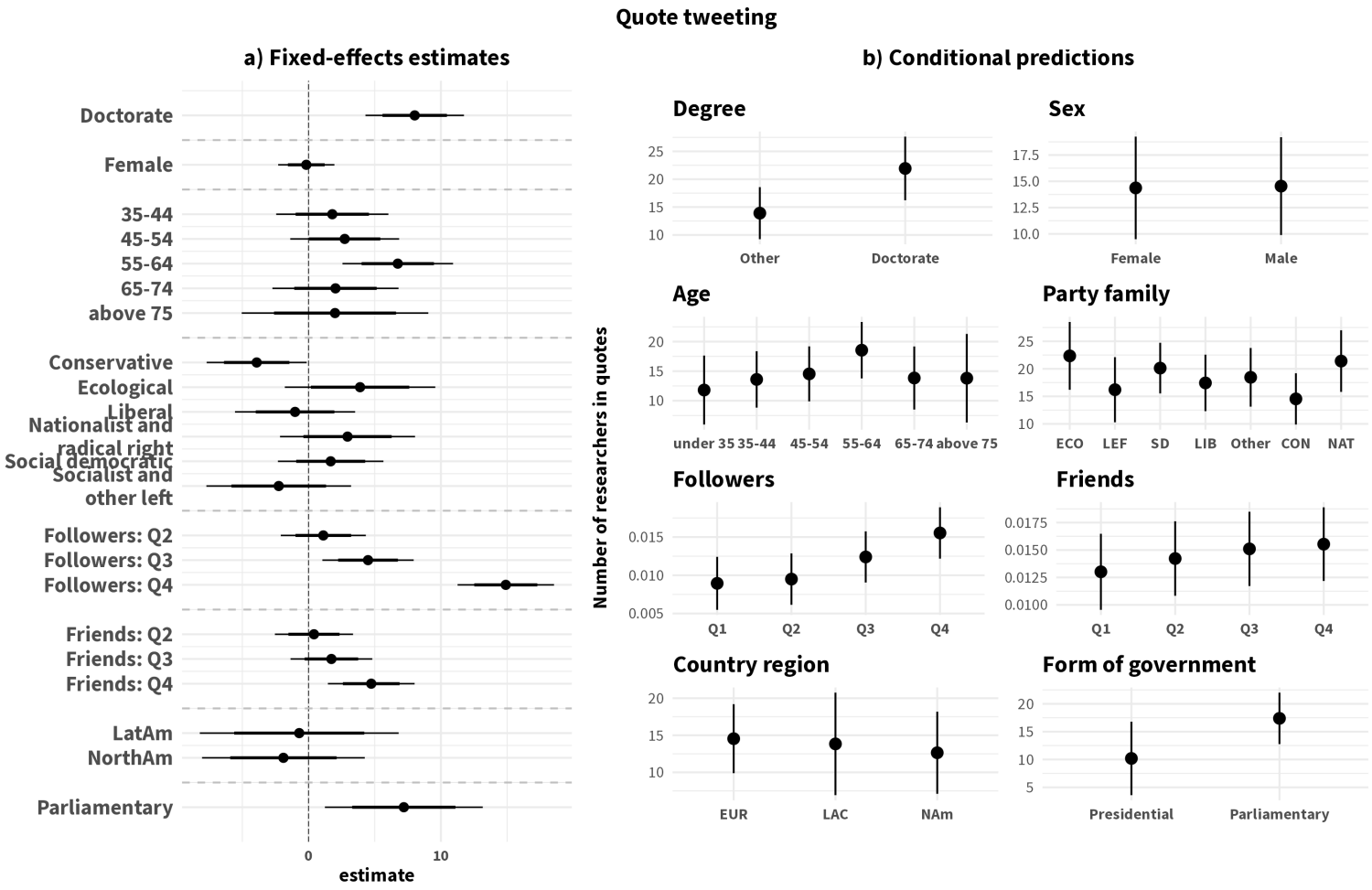


Figure C9: **Estimated effects of legislator and legislature characteristics on the absolute number of quoting of researchers**

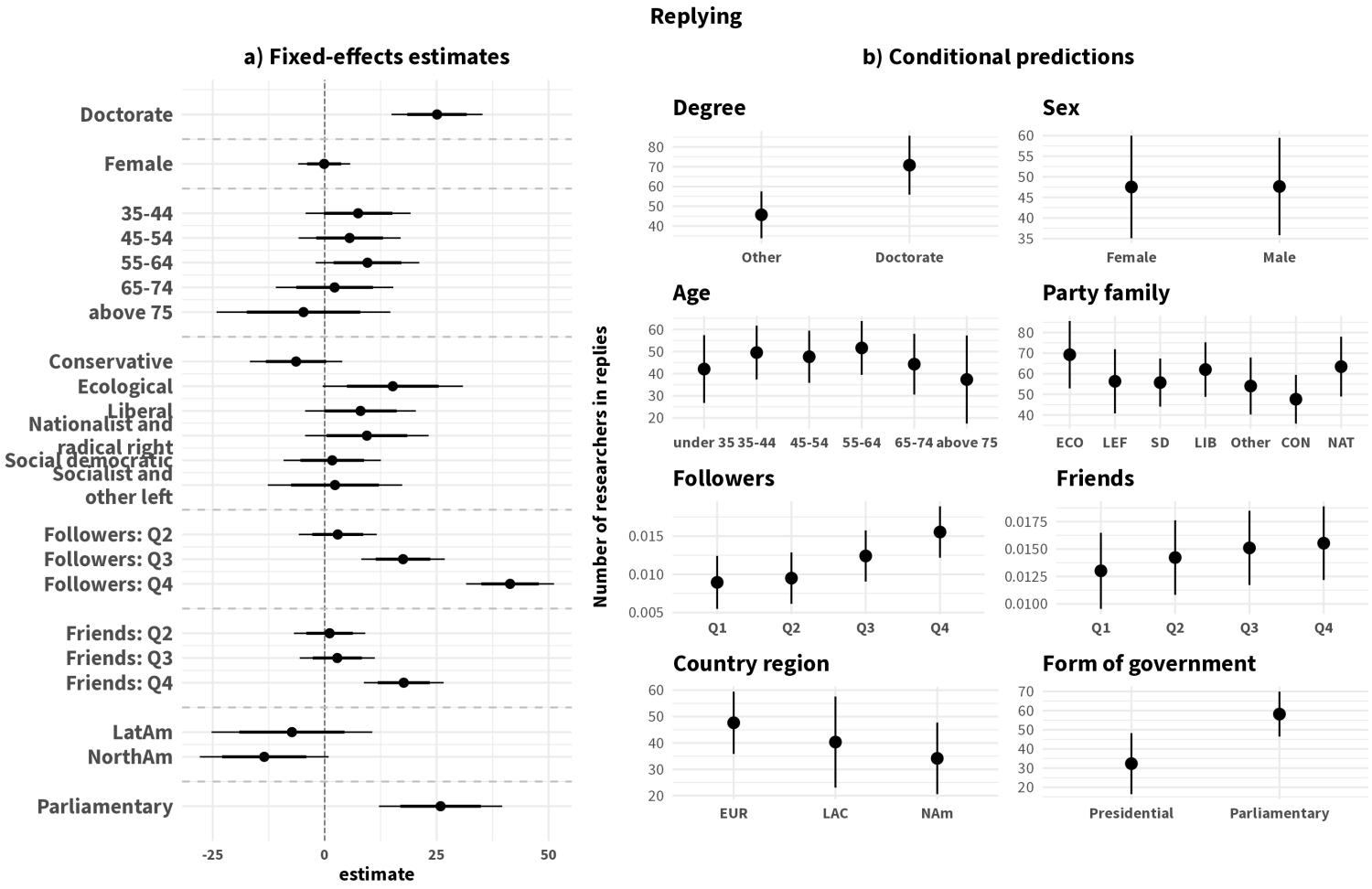


Figure C10: **Estimated effects of legislator and legislature characteristics on the absolute number of replies to researchers**

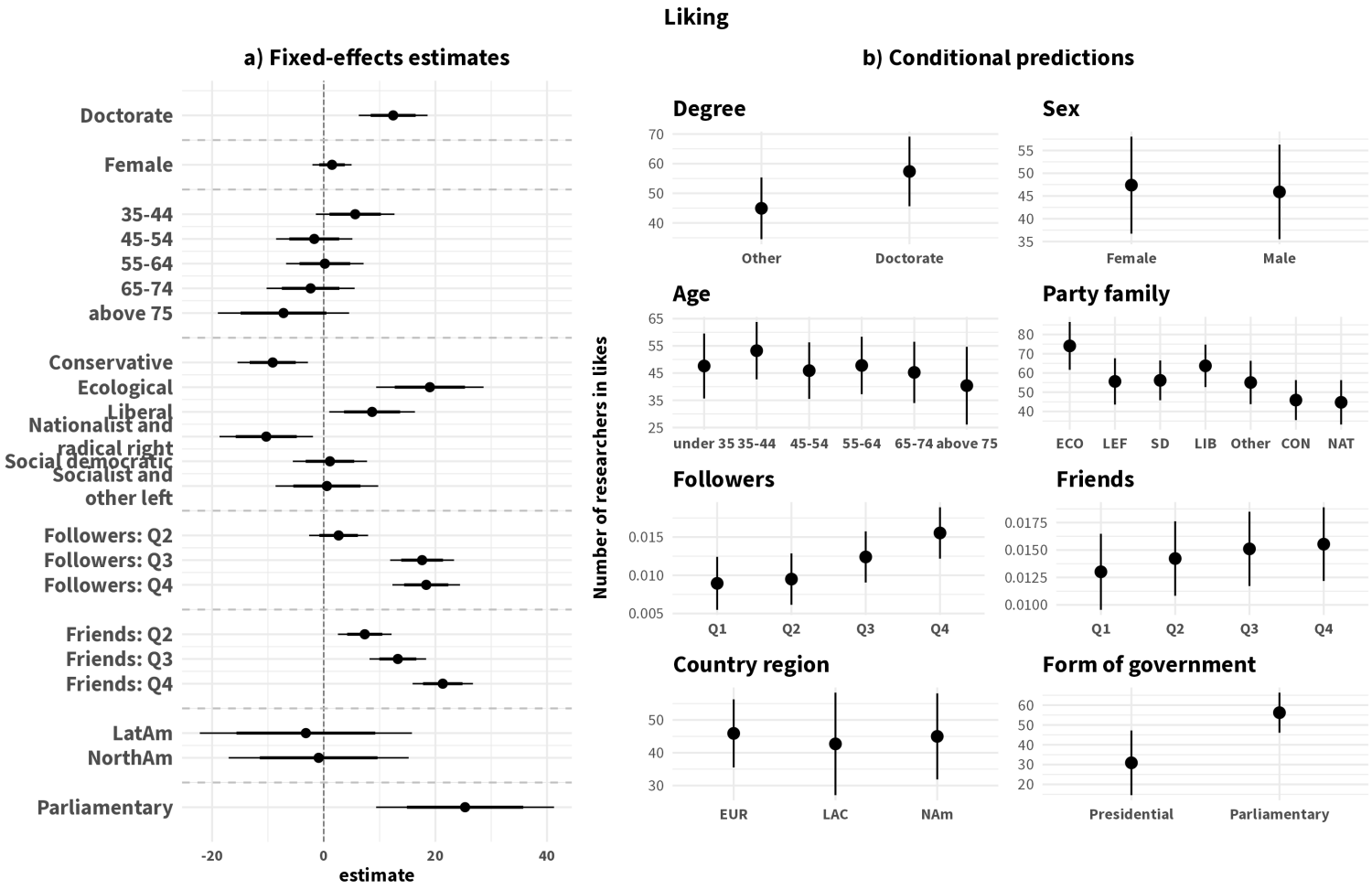


Figure C11: **Estimated effects of legislator and legislature characteristics on the absolute number of likes of researcher Tweets**

C.3 Auxiliary analyses for pre- and during COVID legislator-researcher engagement comparison

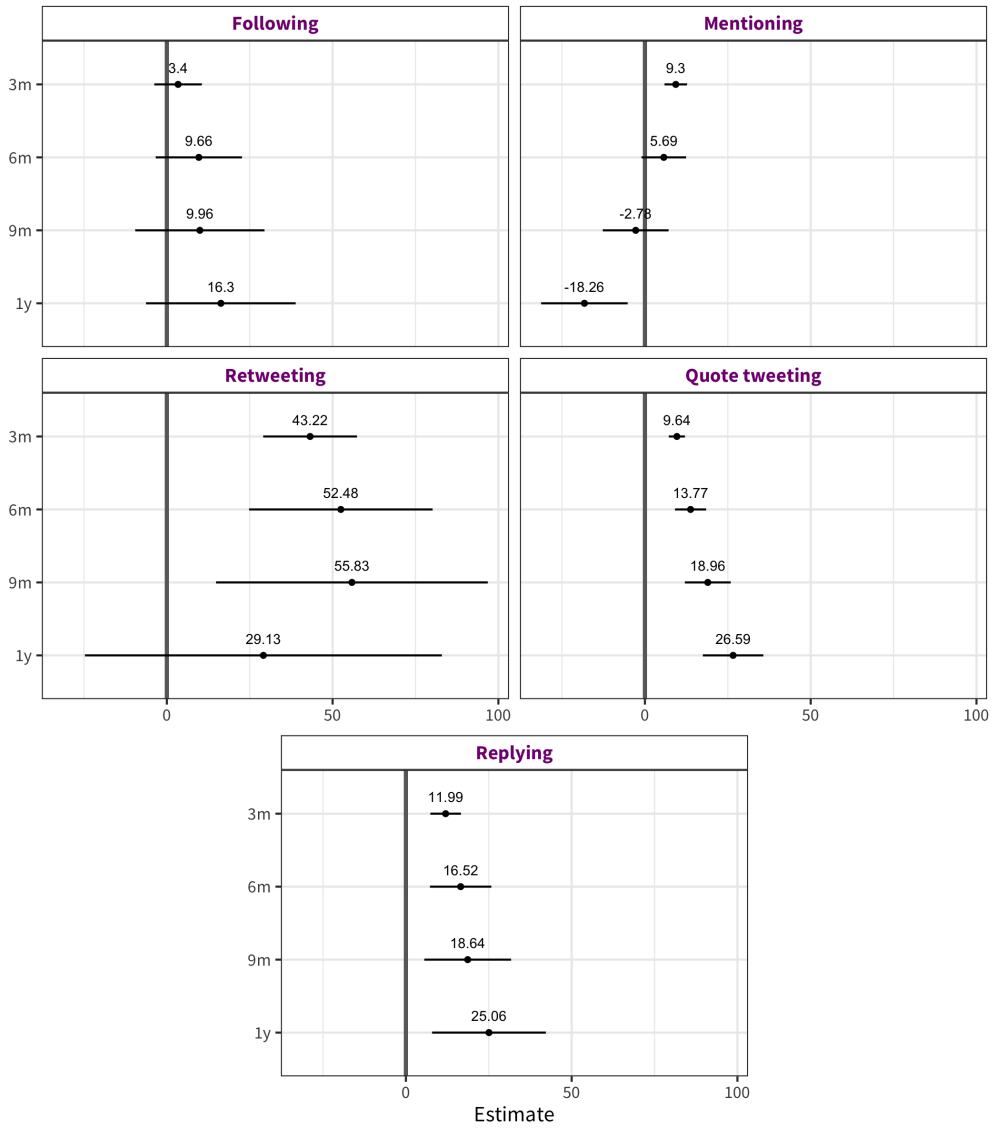


Figure C12: **Differences-in-means between pre- and during-COVID number of behaviors**. Results from OLS estimates

Figure C13: **Subgroup marginal effects on following and engagement with academic researchers during the COVID versus pre-COVID periods with a ±12 week bandwidth (Party family).**

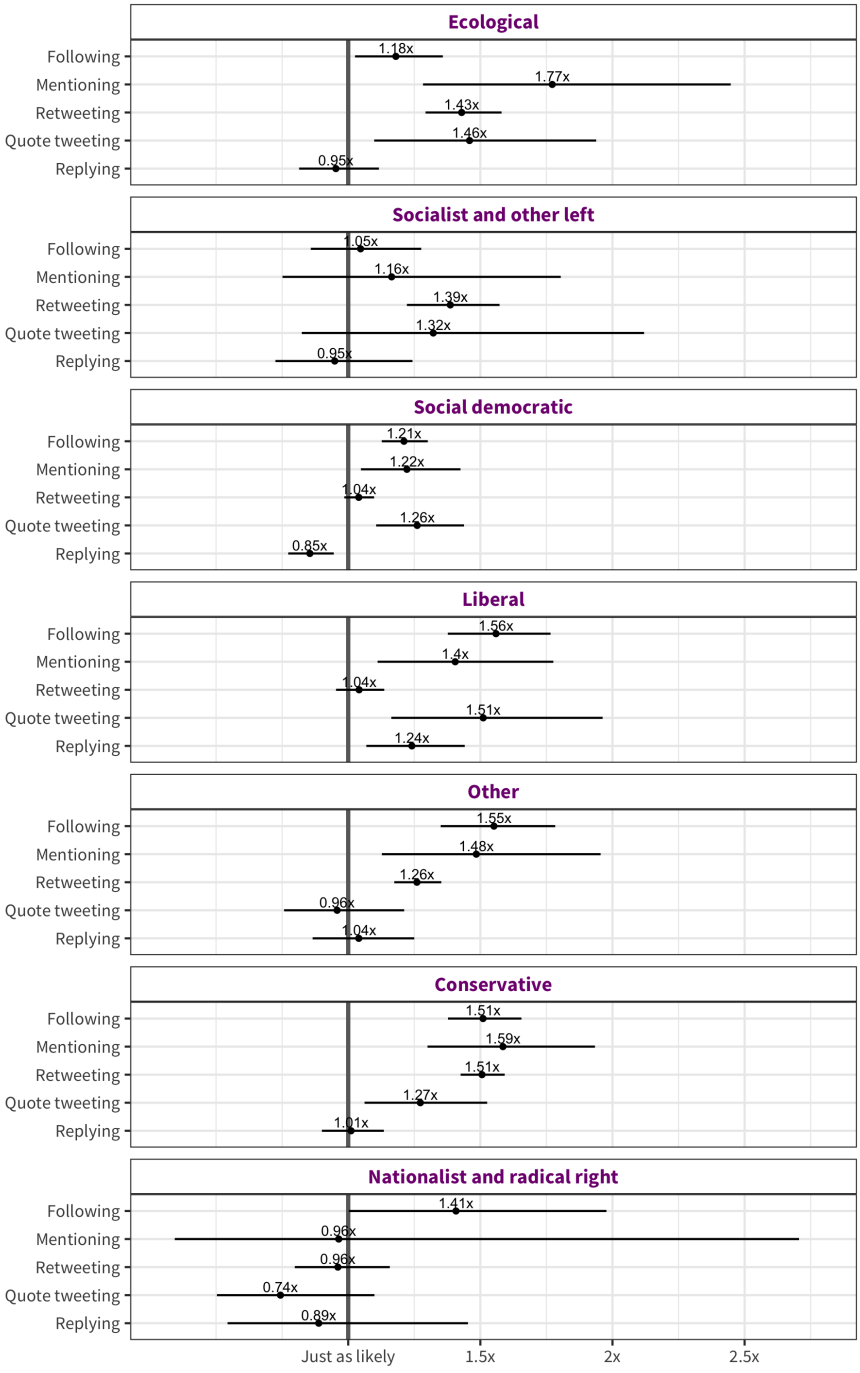
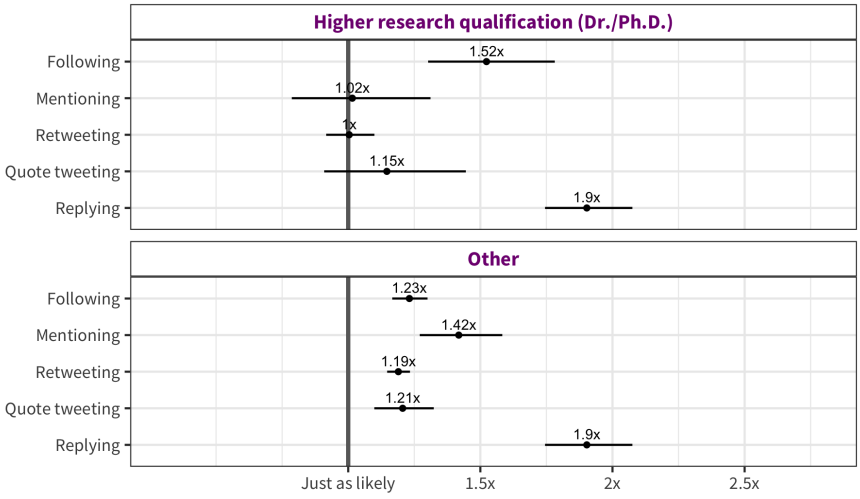


Figure C14: **Subgroup marginal effects on following and engagement with academic researchers during the COVID versus pre-COVID periods with a ±12 week bandwidth (Research qualifications)**.



D Software statement

The computer code and processed data for this study is available at XXX. I used R version 4.2.1 R Core Team (2022) and the following R packages:

`academictwitteR` v. 0.3.1 (Barrie and ting Ho, 2021)
`data.table` v. 1.14.2 (Dowle and Srinivasan, 2021)
`estimatr` v. 1.0.0 (Blair et al., 2022)
`ggh4x` v. 0.2.6 (van den Brand, 2023)
`gt` v. 0.9.0 (Iannone et al., 2023)
`gtExtras` v. 0.5.0.9000 (Mock, 2023)
`janitor` v. 2.1.0 (Firke, 2021)
`kableExtra` v. 1.3.4 (Zhu, 2021)
`lme4` v. 1.1.31 (Bates et al., 2015)
`marginaleffects` v. 0.11.1 (Arel-Bundock, 2023)
`MatchIt` v. 4.5.1 (Ho et al., 2011)
`Matrix` v. 1.5.3 (Bates, Maechler and Jagan, 2022)
`modelsummary` v. 1.4.3 (Arel-Bundock, 2022)
`pacman` v. 0.5.1 (Rinker and Kurkiewicz, 2018)
`patchwork` v. 1.1.2 (Pedersen, 2022)
`psych` v. 2.2.5 (Revelle, 2022)
`reactable` v. 0.4.4 (Lin, 2023)
`reactablefmtr` v. 2.0.0 (Cuilla, 2022)
`rtweet` v. 1.0.2 (Kearney, 2019)
`scales` v. 1.3.0 (Wickham, Pedersen and Seidel, 2023)
`tidyverse` v. 2.0.0 (Wickham et al., 2019)
`urltools` v. 1.7.3 (Keyes et al., 2019)
`webshot2` v. 0.1.0 (Chang, 2022)
`WikidataR` v. 2.3.3 (Shafee, Keyes and Signorelli, 2021)
`xtable` v. 1.8.4 (Dahl et al., 2019)

References

Arel-Bundock, Vincent. 2022. "modelsummary: Data and Model Summaries in R." *Journal of Statistical Software* 103(1):1–23.

Arel-Bundock, Vincent. 2023. *marginaleffects: Predictions, Comparisons, Slopes, Marginal Means, and Hypothesis Tests*. R package version 0.11.1.
URL: *https://CRAN.R-project.org/package=marginaleffects*

Barrie, Christopher and Justin Chun ting Ho. 2021. "academictwitteR: an R package to access the Twitter Academic Research Product Track v2 API endpoint." *Journal of Open Source Software* 6(62):3272.
URL: *https://github.com/cjbarrie/academictwitteR*

Bates, Douglas, Martin Mächler, Ben Bolker and Steve Walker. 2015. "Fitting Linear Mixed-Effects Models Using lme4." *Journal of Statistical Software* 67(1):1–48.

Bates, Douglas, Martin Maechler and Mikael Jagan. 2022. *Matrix: Sparse and Dense Matrix Classes and Methods*. R package version 1.5-3.
URL: *https://CRAN.R-project.org/package=Matrix*

Blair, Graeme, Jasper Cooper, Alexander Coppock, Macartan Humphreys and Luke Sonnet. 2022. *estimatr: Fast Estimators for Design-Based Inference*. R package version 1.0.0.
URL: *https://CRAN.R-project.org/package=estimatr*

Chang, Winston. 2022. *webshot2: Take Screenshots of Web Pages*. R package version 0.1.0.
URL: *https://CRAN.R-project.org/package=webshot2*

Cuilla, Kyle. 2022. *reactablefmtr: Streamlined Table Styling and Formatting for Reactable*. R package version 2.0.0.
URL: *https://CRAN.R-project.org/package=reactablefmtr*

Dahl, David B., David Scott, Charles Roosen, Arni Magnusson and Jonathan Swinton. 2019. *xtable: Export Tables to LaTeX or HTML*. R package version 1.8-4.
URL: *https://CRAN.R-project.org/package=xtable*

Dowle, Matt and Arun Srinivasan. 2021. *data.table: Extension of 'data.frame'*. R package version 1.14.2.
URL: *https://CRAN.R-project.org/package=data.table*

Firke, Sam. 2021. *janitor: Simple Tools for Examining and Cleaning Dirty Data*. R package version 2.1.0.
URL: *https://CRAN.R-project.org/package=janitor*

Ho, Daniel E., Kosuke Imai, Gary King and Elizabeth A. Stuart. 2011. "MatchIt: Nonparametric Preprocessing for Parametric Causal Inference." *Journal of Statistical Software* 42(8):1–28.

Iannone, Richard, Joe Cheng, Barret Schloerke, Ellis Hughes, Alexandra Lauer and JooYoung Seo. 2023. *gt: Easily Create Presentation-Ready Display Tables*. R package version 0.9.0.
URL: *https://CRAN.R-project.org/package=gt*

Kearney, Michael W. 2019. "rtweet: Collecting and analyzing Twitter data." *Journal of Open Source Software* 4(42):1829. R package version 0.7.0.
URL: *https://joss.theoj.org/papers/10.21105/joss.01829*

Keyes, Os, Jay Jacobs, Drew Schmidt, Mark Greenaway, Bob Rudis, Alex Pinto, Maryam Khezrzadeh, Peter Meilstrup, Adam M. Costello, Jeff Bezanson, Peter Meilstrup and Xueyuan Jiang. 2019. *urltools: Vectorised Tools for URL Handling and Parsing*. R package version 1.7.3.
URL: *https://CRAN.R-project.org/package=urltools*

Lin, Greg. 2023. *reactable: Interactive Data Tables for R*. R package version 0.4.4.
URL: *https://CRAN.R-project.org/package=reactable*

Mock, Thomas. 2023. *gtExtras: Extending 'gt' for Beautiful HTML Tables*. https://github.com/jthomasmock/gtExtras, https://jthomasmock.github.io/gtExtras/.

Mongeon, Philippe, Timothy D. Bowman and Rodrigo Costas. 2023. "An open data set of scholars on Twitter." *Quantitative Science Studies* pp. 1–11.

Pedersen, Thomas Lin. 2022. *patchwork: The Composer of Plots*. R package version 1.1.2.
URL: *https://CRAN.R-project.org/package=patchwork*

R Core Team. 2022. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing.
URL: *https://www.R-project.org/*

Revelle, William. 2022. *psych: Procedures for Psychological, Psychometric, and Personality Research*. Evanston, Illinois: Northwestern University. R package version 2.2.5.
URL: *https://CRAN.R-project.org/package=psych*

Rinker, Tyler W. and Dason Kurkiewicz. 2018. *pacman: Package Management for R*. Buffalo, New York: . version 0.5.0.
URL: *http://github.com/trinker/pacman*

Shafee, Thomas, Os Keyes and Serena Signorelli. 2021. *WikidataR: Read-Write API Client Library for Wikidata*. R package version 2.3.3.
URL: *https://CRAN.R-project.org/package=WikidataR*

van den Brand, Teun. 2023. *ggh4x: Hacks for 'ggplot2'*. R package version 0.2.6.
URL: *https://CRAN.R-project.org/package=ggh4x*

Wickham, Hadley, Mara Averick, Jennifer Bryan, Winston Chang, Lucy D'Agostino McGowan, Romain François, Garrett Grolemund, Alex Hayes, Lionel Henry, Jim Hester, Max Kuhn, Thomas Lin Pedersen, Evan Miller, Stephan Milton Bache, Kirill Müller, Jeroen Ooms, David Robinson, Dana Paige Seidel, Vitalie Spinu, Kohske Takahashi, Davis Vaughan, Claus Wilke, Kara Woo and Hiroaki Yutani. 2019. "Welcome to the tidyverse." *Journal of Open Source Software* 4(43):1686.

Wickham, Hadley, Thomas Lin Pedersen and Dana Seidel. 2023. *scales: Scale Functions for Visualization*. R package version 1.3.0.
URL: *https://CRAN.R-project.org/package=scales*

Zhu, Hao. 2021. *kableExtra: Construct Complex Table with 'kable' and Pipe Syntax*. R package version 1.3.4.
URL: *https://CRAN.R-project.org/package=kableExtra*