

No Easy Way Out? Platform-Mediated Political Externalities and Platform Strategy

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ABSTRACT

Content-sharing platforms manage network effects by affecting user access and behavior but in the process also generate externalities. We focus on platform-mediated political externalities i.e., changes in political interactions among political agents due to platforms' intermediation activities. We develop a theoretical framework that explains the origins of these political externalities, the strategic tradeoffs it creates for platforms vis-à-vis network effects, and how and why platforms respond to these tradeoffs by creating and enforcing rules. We theorize that a higher potential for network effects leads platforms to generate more negative political externalities, to more negatively affect non-users than users, and to selectively enforce rules based on users' contribution to network effects. We extend the baseline model by examining various other boundary conditions. By focusing on the interaction of political externalities and network effects, and how platforms respond to it, our framework explains when and why platforms may choose *not* to mitigate negative political externalities. We contribute to research on externalities arising due to platform actions, particularly in their role as private regulators, and offer implications for managerial practice and policymakers.

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Digital content-sharing platforms¹ (platforms hereafter) are increasingly central to the social and political life of citizens. Key to their business models are network effects — the property that a platform is more valuable to its users as more users join the platform (Rochet & Tirole, 2006; Belleflamme & Peitz, 2021). Accordingly, research in the strategy of these organizations has explored how platforms’ decisions on pricing, scope choices, and governance enables network effects (Rochet & Tirole, 2006; Boudreau & Hagiu, 2009; Eisenmann, Parker & Van Alstyne, 2011; Hagiu & Wright, 2015; Luo & Kaul, 2019).

However, research has yet to fully examine how the business strategy of these platforms has consequences for the civic and political life of citizens. The economics and business strategy literature on platforms has focused on the link between platform actions and network effects and has made great strides in enhancing our understanding of the intricacies of their business model but neglected two features. First, users of platforms are *both* political and economic agents, and second, as we show below, platform actions lead to both network effects and non-pecuniary externalities² for users *and* non-users, especially *political* externalities. Political externalities affect how the public sphere functions and, as a result, how the political actors interact with each other (Habermas, 2006). Hence, to fully characterize the impact of platform actions, such political externalities need to be taken into account.

¹ Platforms are defined as firms that enable interactions between two or more participant or end-user sides (Rochet & Tirole, 2003, 2006; Parker & Van Alstyne, 2005). In this paper we focus on digital content sharing platforms i.e., private entities mediating interactions among several participant sides using primarily or largely digital means, irrespective of their market share (Boudreau & Perrot, 2020) that allow the creation and distribution of content (e.g., information, images, videos, audio, web links etc.) including social networks (e.g., Facebook, Twitter), media platforms (e.g., YouTube, TikTok), and communication platforms (e.g., Telegram, WeChat).

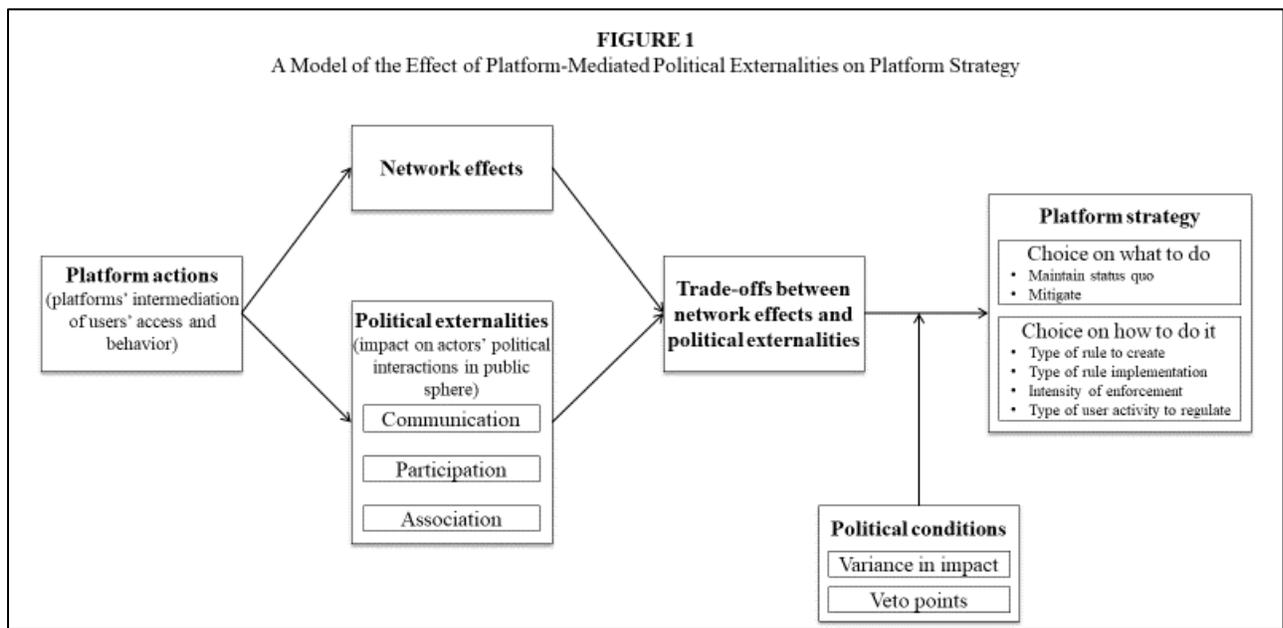
² Following classic work (Buchanan & Stubblebine, 1962; Liebowitz & Margolis, 1994), we focus on non-pecuniary externalities (also named “real” or “technological” externalities) which result in changes that impact the actions or outcomes of the focal actor and are not the outcome of market mechanisms.

How platforms reacted to the January 2021 Capitol Hill riots in the US and the aftermath provides a vivid illustration of the issues addressed in this paper. In early January 2021, two of the most prominent content-sharing platforms (Facebook and Twitter) revoked the user account of Donald Trump, ex-President of the United States, in the wake of the Capitol Hill riots on January 6, 2021 (Nicas & Alba, 2021). The platforms justified the account suspension by asserting that their terms of use, particularly those that prohibit inciting violence on the platform, were violated. Moreover, media reporting indicated that the riots were primarily coordinated and organized on social media on the back of a long-running disinformation campaign that falsely asserted that the 2020 U.S. presidential election results were affected by electoral fraud (Nicas & Alba, 2021). The “de-platforming” of Donald Trump was met with widespread criticism from various political leaders globally (e.g., European Union lawmakers, French & German politicians among others) expressing their reservations about the political consequences of these platforms’ decision (Breton, 2021; Le Monde, 2021; Yahoo News, 2021).

As this case exemplifies, platforms were used to communicate, spread, and amplify political content about electoral fraud in the US, which led to coordinated violent activities with a large political impact. Platforms were compelled to react to these large-scale political externalities by excluding one prominent user. However, as demonstrated by reactions of other political leaders, even in such an extreme situation, the platforms’ decision was not supported by the usual political process involving consensus building among key stakeholders. Interestingly, both the politicians and platforms’ decision-makers agree that platform actions can generate negative externalities of a fundamentally *political* nature (in this case, by amplifying or censoring political content), although they also disagree about the process by which these externalities should be addressed. That these arguments are levied by a broad set of politicians highlights the dilemma for platforms:

the interactions they enable between users do not just create network effects, but also create externalities that affect political actors.

In this paper, we focus on how platforms, in their quest to manage network effects, create externalities for users and non-users that substantially affect how political actors, individuals and organizations alike, interact and influence each other in the political realm. We refer to such externalities as *platform-mediated political externalities* and develop a theoretical framework consisting of three parts. First, we provide a conceptual understanding of platform-mediated political externalities including how these are by-products of platforms' actions to manage network effects. We then evaluate the strategic tradeoffs that arise for platforms as a result of the interaction between network effects and these externalities, with and without competition. Finally, we analyze platforms' responses to these tradeoffs, how platforms create and enforce rules to implement these choices, and political conditions that make platforms more or less likely to respond. Our analysis is positive, rather than normative. Figure 1 presents an overview of the main concepts of the paper and how they relate to each other.



Our paper contributes to research on externalities arising due to platform actions, particularly in their role as private regulators. By demonstrating that externalities may be produced in addition to network effects, we extend the theoretical scope of the consequences of platforms' actions. Further, by analyzing how platforms manage the tradeoffs between network effects and externalities, we shed light on when and why platforms may choose to *not* act or maintain status quo instead of mitigating negative externalities, *despite* being able to create and enforce rules. Scholars, across multiple disciplines, and policymakers who are interested in the consequences of platform actions could thus benefit from our insights.

PLATFORM-MEDIATED POLITICAL EXTERNALITIES AS A BY-PRODUCT OF NETWORK EFFECTS

Platforms' strategy consists of actions to generate and maintain network effects, given the criticality to their business model. We argue that in addition to generating network effects, content-sharing platforms also cause non-pecuniary externalities. In this paper we focus on a specific type of non-pecuniary externalities which we term *platform-mediated political externalities*. Platform-mediated political externalities (that we define in detail below) affect how political actors interact and influence each other in the political realm. We argue that the existence of these platform-mediated political externalities creates specific tradeoffs for platforms' business strategy and motivates specific responses from platforms.

Network Effects and Non-Pecuniary Externalities

The literature on platforms emphasizes the significance of network effects, both direct and indirect (or cross-side), to their business model (Rohlf's, 1974; Katz & Shapiro, 1985). Hence, platforms undertake various actions to generate, grow, and maintain these network effects such as pricing (Caillaud & Jullien, 2003; Rochet & Tirole, 2003; Parker & Van Alstyne, 2005), envelopment (Eisenmann, Parker & Van Alstyne, 2011), vertical scope choices (Hagiu & Wright,

2015), and rules on design, user access and behavior (Boudreau & Hagiu, 2009; Crémer, de Montjoye & Schweitzer, 2019; Koo & Eesley, 2021). Network effects are a type of externality, whereby an additional user affects the value that other users may derive by accessing or participating to an interaction on the platform (Rochet & Tirole, 2006; Belleflamme & Peitz, 2021). Direct network effects arise when users belong to the same group and indirect network effects occur when users belong to different groups or user sides (Katz & Shapiro, 1985; Rochet & Tirole, 2006; Belleflamme & Peitz, 2021).

However, in the context of platforms, non-pecuniary externalities may also exist in addition to network effects. Non-pecuniary externalities (termed as “technological externalities” by Liebowitz and Margolis, 1994) arise where the action of a user impacts the actions or outcomes of other users, or non-users, without being mediated by any market mechanism. Unlike network effects, non-pecuniary externalities may not necessarily be driven by an additional user’s participation (or usage) of a platform. Yet, similar to network effects, non-pecuniary externalities may be network specific (i.e., affect platform users only) or non-network specific (i.e., spill over and affect non-users of the platform) (Belleflamme & Peitz, 2021).

Examples of network specific non-pecuniary externalities include seller discrimination on the basis of race or ethnicity (Edelman, Luca & Svirsky, 2017; Lambin & Palikot, 2019), cyber-bullying, online harassment or criminal activity (Klonick, 2017), online diffusion of mis-information (Allcott & Gentzkow, 2017), and political influence operations (Farrell & Newman, 2019). Instances of spillovers of specific non-pecuniary externalities include the spread of vaccine hesitancy offline due to mis-information e.g., CoVID-19 (Murphy, Vallières, Bentall et al., 2021), offline social or political protests and campaigns (Tufekci & Wilson, 2012; Zhuravskaya, Petrova

& Enikolopov, 2020; Cohen & Fung, 2021), political riots e.g., US Capitol Hill in 2021 (Nicas & Alba, 2021) among others.

Platform-Mediated Political Externalities and the Public Sphere

In the remainder of the paper, we focus on a particular type of non-pecuniary externalities i.e., *platform-mediated political externalities* (“political externalities” hereafter). We define³ political externalities as the changes in political interactions among political agents that are (i) due to the existence and operation of digital platforms, (ii) are consequential to political outcomes, and (iii) are non-pecuniary i.e., not mediated by the market. These externalities can be network specific (i.e., affect platform users only) but often spill over and affect platform non-users as well.

To conceptualize how political externalities arise we use the concept of the “public sphere” (Habermas, 2006). The public sphere is the actual and metaphorical space in which citizens can meet and interact in order to deliberate about societal issues in order to determine political priorities and actions (Habermas, 2006). The public sphere has been affected by new modes of interactions enabled by information and communication technology leading to the emergence of a *digital* public sphere. The digital public sphere has taken an ever-greater importance in facilitating notable changes in the way citizens and political actors relate to each other. This includes, for instance, the increased availability of diverse opinions and voices, easier organization of new political movements, weakening of traditional political structures but also increased dissemination of dis-information (Cohen & Fung, 2021). As interactions in the digital public sphere happen

³ The definition excludes the political consequences of economic changes due to the emergence of platforms as economic actors, however indirectly. For instance, the rise of real estate value in California due to the influx of technology workers has political consequences but is out of the scope of the definition as changes in real estate prices are not fully mediated by the operations of the digital platforms. Similarly, an increase in lobbying activities undertaken by incumbent taxi companies because competition from Uber in a given city would be out of scope because competition between Uber and incumbent taxi companies is mediated through the market (Paik, Kang & Seamans, 2019; Ricart, Snihur, Carrasco-Farré & Berrone, 2020).

almost entirely on platforms, we construe this non-pecuniary externality stemming from platforms' operations as political externalities.

The public sphere plays a key role in the formation of political opinion through the deliberation of political agents. Deliberation occurs as political agents i.e., individuals and organizations representing individuals, participate in the political process through information dissemination and exchange, opinion formation on political issues, and mobilization for civic activism (Habermas, 2006; Cohen & Fung, 2021). Deliberation happens through the sharing of information, leading to the prioritization of and public attention to political issues. When supplemented with civic activism, it may eventually lead to more formal political activity e.g., through participation to elections, lobbying for legislation, and bringing cases to courts (Cohen & Fung, 2021). Thus, deliberation by political agents is complementary to formal participation to the political process through voting or lobbying (Habermas, 2006; Cohen & Fung, 2021).

In the digital public sphere, content-sharing platforms have been increasingly intermediating users' political activities (Cohen & Fung, 2021). To analyze how platforms generate political externalities in the digital public sphere, we characterize the activities of political agents as building on three cumulative processes: communication, participation, and association. Forming a required basis, *communication* is the ability of agents to engage in exchanges with other political actors, as well as the search, discovery, and exchange of information and political perspectives. Building on communication, *participation* consists of the provision and dissemination of arguments, leading to opinion formation, the orientation of public attention, and the prioritization of political issues. Finally, communication and participation in the public sphere can motivate *association* among participants i.e., organized action, campaigns, or resource mobilization by political agents.

We use the *communication–participation–association* typology to organize the discussion of the relationships between platform rules, political externalities, and platforms’ response to political externalities. Platforms simultaneously affect these three elements of public sphere activity. We focus on private regulation by platforms i.e., rules created and enforced by platforms in the form of “terms of use” or automatically enforced as computer code (Lessig, 1998; Boudreau & Hagi, 2009). Platform rules are the specific means by which political externalities may be both generated and managed due to two mechanisms — first, framing users’ incentives and constraints, and second, reducing users’ search and information costs.

First, platforms’ rules frame user access and activity by specifying, incentivizing, and enforcing actions and outcomes that are “*required, prohibited, or permitted*” (Ostrom, 1986 emphasis original), thus enforcing limits on users’ participation and political activities in the digital public sphere. Second, platforms’ rules allow for users’ search, discovery, and distribution of information and communication at nearly zero marginal costs (Evans, 2003; Goldfarb & Tucker, 2019). We now focus on how platform rules lead to political externalities and later provide a detailed analysis on how political externalities may be managed through the same means.

Communication in the digital public sphere

Rules set by platforms have a considerable influence on how users can communicate among themselves in the digital public sphere. Platform rules define access (who can join), and stipulate user activity (who can contact whom, what users can do, and who can collaborate with whom) (Hagi, 2015). Access is specified and enforced through terms of use and platform design choices implemented as code. For example, WhatsApp and Signal require a user to have an operational phone number to join the platform while Clubhouse users need an “invite” or referral from an existing user to join the platform (Guardian, 2021; WhatsApp, 2022; Signal, 2022). User

activity i.e., who can contact whom and how users may distribute content is also governed by platform rules. For instance, Telegram allows for the constitution of very large groups (up to 200,000 members) while WhatsApp officially limits group membership to 256 members (Telegram, 2022; WhatsApp, 2022). This difference thus reflects the respective platform rule choice on what users are allowed to do (i.e., limits on users' ability to distribute content) rather than technical constraints. Overall, rules governing who can join and with whom communication can be established directly affects the creation and shape of users' online communication network.

Increased opportunities for communication can be both positive or negative as political externalities. From the viewpoint of a well-functioning public sphere, the facilitation of communication creates many positive externalities. Information and opinions can be more readily shared, marginalized individuals and groups can be given a voice they would not have without these platforms and a broad set of civil society members can easily exchange opinions and facts. These range, for instance, from individuals, firms, advocacy organizations, celebrities, corporate leaders, political representatives, political parties and candidate campaigns to heads of states, police, city administrations and even supra-national entities thus enriching the public sphere (Cohen & Fung, 2021).

However, on the negative side, more opportunities for communication are also more opportunities for the diffusion of disinformation, which undermines deliberation in the public sphere. For instance, scholars have found evidence that online diffusion of misinformation (e.g., fake news during the 2012 Italy elections) was comparable to that of correct information (Mocanu, Rossi, Zhang et al., 2014). Regardless of whether political externalities are positive or negative, we posit that more communication possibilities mediated by platforms increases the possibilities of political externalities.

Proposition 1: The more a platform facilitates communication in the public sphere, the more political externalities are generated in the public sphere.

Participation in the public sphere

While communication forms the basis for the public sphere, the key function of the public sphere is to enable its members to engage in deliberation, understood as the process by which informed opinions can be formed and political priorities be collectively determined within the civil society. Participation to deliberation is thus essential for prioritizing and bringing visibility to political issues for the benefit of the whole society (Habermas, 2006).

Platforms, by the rules they set, extend and affect their users' ability to debate and deliberate on political issues. On platforms, deliberation is influenced and enhanced by concrete choices of rules and features about what users are allowed to do. Users' capacity to influence each other on the platform through argumentation depends for instance on whether linking to external resources (e.g., other platforms or websites) is permitted and how easily users can do so. A simple affordance enabled by code, such as the embedding of a preview of the media or website link can enhance the impact of the users' post (Ng & Taeihagh, 2021).

Other affordances, such as which media can be created, distributed, or exchanged on the platform (e.g., images, videos, words, audio, documents) and in-built features that enhance users' ability to present an influential argument affect their participation in the digital public sphere on a given platform. For instance, TikTok allows users to produce and edit high impact content (e.g., short videos) on their mobile phones that has been used for political influence purposes. Recently, analysts have linked the increased production of disinformation content on the Russia-Ukraine war to TikTok users' ability to replace entire soundtracks of videos (Guardian, 2022).

Additionally, platforms' rules (in the form of code or algorithms) influence the outcome of participation and deliberation in the public sphere through the selective amplification of content, giving more visibility to contributions deemed to be more interesting to the audience to reinforce network effects. Some of these actions may be content agnostic, but other choices are determined by what increases users' participation on the platform. For instance, Facebook, through algorithmic implementation, favored the visibility of sensitive content that provoked user responses in the form of comments, re-sharing of posts etc. (Horwitz, 2021).

More subtly, how political opinions evolve in the aggregate can also be influenced by the platforms' design and rules. Despite the diversity of political perspectives, opinions, and narratives, polarization has also been enabled with the emergence of "filter bubbles" and "echo chambers". In filter bubbles, users lock themselves into receiving information and perspectives slanted to a certain viewpoint, preventing any possible change in opinion. Echo chambers are communities of users which are impervious to the existence of other communities and evolve in an insular way (Cohen & Fung, 2021). In both cases, we see the indirect effect of platforms' choices on the public sphere based on what users are allowed to do, in terms of selection of specific sources of content on the platform and rules that determine what content users may be exposed to.

Such changes in the public sphere affecting are not necessarily all positive or negative and the empirical evidence of this externality is mixed. For instance, some empirical studies find a negative effect of the dissemination of 3G connectivity on government approval (Guriev, Melnikov & Zhuravskaya, 2021). Another study finds that the early dissemination of Twitter at a music festival influenced the vote share of Democrats in the 2016 US elections, which the authors attribute to the influence of more liberal views available on Twitter (Fujiwara, Müller & Schwarz,

2021). We thus surmise that participation in the digital public sphere, enabled by platforms, lead to more political externalities (positive or negative).

Proposition 2: The more a platform facilitates participation in the public sphere, the more political externalities are generated in the public sphere.

Association in the public sphere

Enabled by communication, and building on participation to collective deliberation, association in the public sphere represents the step that converts collective deliberation into collective action. Platforms potentially offer and regulate many practical aspects of association in the public sphere by enacting rules that permit the creation of communities or groups of interest, as well as software features allowing the management and moderation of community by users themselves (Ng & Taeihagh, 2021). These are powerful additions to the traditional ways in which users can associate in the public sphere. Other features such as online petitions and fund-raising campaigns, crucial to the organization of political activity, are easily enabled. As a result, platforms' private regulation also enables political organization and arguably lower barriers for entry into politics (Zhuravskaya et al., 2020).

Empirical studies provide evidence for association enabled by platforms. These include protests in Russia against electoral fraud in 2011-2012 that were enabled by the Russian social network VK (Enikolopov, Makarin & Petrova, 2020), information shared on Chinese social platform, Sina Weibo, about protests and strikes despite state censorship in China (Qin, Strömberg & Wu, 2017) that also spilled over to offline protests (Zhuravskaya et al., 2020) etc. Research also indicates that platforms have enabled the rise of anti-establishment movements e.g., support for populists in Italy (Five Star movement in 2013) and Germany (Alternative for Germany or AfD in

2017) among others (Campante, Durante & Sobbrío, 2018; Schaub & Morisi, 2020; Zhuravskaya et al., 2020). We thus contend,

Proposition 3: The more a platform facilitates association in the public sphere, the more political externalities are generated in the public sphere.

Table 1 summarizes the relationships between the processes of communication, participation, and association in the digital public sphere, the platforms rules (including code and terms of uses) that frame them, and the resulting political externalities.

Insert Table 1 about here

PLATFORMS' TRADEOFFS BETWEEN NETWORK EFFECTS AND POLITICAL EXTERNALITIES

Baseline Model: Tradeoffs without competition

Ideally, platforms would prefer only positive political externalities such that these further increase network effects, due to increase in user membership (i.e., attract new users) or increase in user activity (i.e., more involvement by current users). Further, platforms would prefer that the impact of these positive political externalities is uniform across all users and does not spillover beyond the platform boundaries i.e., has no detrimental impact on non-users. However, when negative externalities exist, a tradeoff arises for platforms — how to maximize (or at least maintain) network effects while mitigating negative political externalities.

At the baseline, platforms will prefer to only deal with negative political externalities that directly affect their current user base, not internalizing or accounting for the impact of these externalities outside platform boundaries. This is because platforms can observe and (realize) mitigate (positive) negative externalities that occur because of the composition and behavior of users across different sides of a platform (Boudreau & Hagiu, 2009). Social media platforms (e.g.,

Facebook) actively enforce rules that prevent the upload of illegal images or videos through the picture recognition algorithm PhotoDNA and thus affect user participation on the platform (Klonick, 2017). Hence, a platform is likely to maximize network effects while attempting to minimize negative political externalities *within* its user base, disregarding the impact of these externalities outside its boundaries.

When a platform does account for negative political externalities in its user base, it has to trade off some network effects in order to limit negative externalities among its users. Negative externalities, when they exist, effectively constrain network effects because a very high level of negative externalities would alienate the user base and backfire for the platform. Further, a platform would solely take into account externalities to its user base, since only those have an immediate and direct impact on its business, unless other pressures by stakeholders are at play. This implies that platforms always proportionally affect more non-users than users, through negative externalities. *Ceteris paribus*, if a platform trades off more negative externalities to generate more network effects for its users, then non-users will be disproportionately more negatively affected relative to users. To summarize, we posit⁴,

Proposition 4: The higher the potential for network effects within its user base, the more likely it is for a platform to generate negative political externalities for users and non-users.

Proposition 5: The higher the potential for network effects within its user base, the more likely it is for a platform to generate negative political externalities for non-users relative to its users.

⁴ We recognize that these propositions may apply to all kinds of non-pecuniary externalities, of which political externalities are one type.

The first proposition is a consequence of platforms choosing to generate some negative political externalities for more network effects. The second proposition reflects that platforms weigh the effects of political externalities in priority for users and less for non-users. Taken together, the two propositions reflect the baseline of platforms' strategy with respect to negative political externalities — under no external pressure, platforms do not account for negative political externalities outside of their users.

Tradeoffs with competition

So far, we have assessed platforms' likely response by assuming away competition. We now analyze platforms' response when a focal platform's users' multi-home, i.e., interact with more than one platform (Caillaud & Jullien, 2003). We argue that when users multi-home, platforms are less likely to respond by trading-off network effects to mitigate negative externalities. This conclusion stems from two mechanisms.

First, because of perceived restrictions to platform activity or due to loss of platform access (i.e., being suspended or dis-intermediated from the platform), users may reduce their activity or even exit the platform for other competitors. Further, these mitigation strategies may also lead to a critical mass of users to migrate from the platform, in which case there is a risk of negative network effects being generated within the platform. Thus,

Proposition 6: The higher the potential of losing a critical mass of users to competitors, the less likely it is for a platform to tradeoff network effects for reduced negative political externalities.

Second, when users multi-home and the negative externalities are not specific to a platform, there may be a collective coordination failure as all platforms may expect freeriding from other competitors, resulting in each platform shirking to reduce negative externalities (Ostrom, 2008).

This is because any platform that mitigates negative externalities by enforcing rules on user behavior or activity directly impact its own network effects and indirectly, due to user migration to other platforms (see Proposition 6 above). As the overall level of negative externalities may decrease, other competitors can then free-ride on the focal platform's effort to reduce negative externalities. Anticipating such a response from its competitors, each platform may then choose to shirk instead of regulating negative externalities. We thus argue,

Proposition 7: The more users' multi-home across platforms, the less likely it is for a platform to tradeoff network effects for reduced negative political externalities.

Political Conditions affecting Platforms' Responses

We now address the political conditions that make platforms more (or less) willing to address political externalities. We identify two key contingencies that make a platform less likely to mitigate negative political externalities reducing network effects, particularly when platforms may be under pressure from various actors such as civil society groups, media, or states to reduce these negative political externalities (Klonick, 2017).

When facing external pressure, platforms may choose not to change anything fundamental about the network effects - political externality tradeoff and instead respond through non-market strategies (e.g., lobbying as in Dorobantu, Kaul & Zelner, 2017). Indeed, the baseline model assumes that platforms maximize their interests without accounting for externalities affecting non-users. Thus, any reduction in negative political externalities by the platform implies a direct cost at least in terms of foregone profits. However, if the negative externalities are too large to be mitigated using non-market strategies or an exogenous shock occurs (e.g., CoVID-19 pandemic, an international conflict) platforms may be compelled to respond to external pressure.

In such a case, two factors may moderate platforms' likely response based on existing political conditions — first, the distribution of political externalities across various political actors, and second, the ability of these actors to deter changes they oppose. Platforms are most likely to address issues if there is effective and concerted action among stakeholders that force platforms to respond i.e., collective action. However, political externalities by their nature are multi-leveled and heterogenous in their impact across political actors i.e., what may be a negative political externality for one group of actors, may be a positive externality for another group (Freelon, Marwick & Kreiss, 2020). Faced with a lack of consensus, a platform is likely to maintain status quo (do nothing) or play one group against the other. Similarly, if the political system includes veto points such that a minority group who benefits from the externalities can impede action by a majority who suffers from negative political externalities, a platform is likely to maintain status quo or only concede to minimal changes (Jia, Markus & Werner, 2021). We thus posit,

Proposition 8: The more political externalities have simultaneously positive and negative effects across distinct groups of political actors, the less likely it is for a platform to respond by mitigating negative political externalities.

Proposition 9: The more a political system includes veto points that permit a minority group to block collective action, the less likely it is for a platform to respond by mitigating negative political externalities.

PLATFORMS' RESPONSES: PRIVATE REGULATION AND TRADEOFF MITIGATION

In this section we analyze how platforms may respond to the strategic tradeoffs between network effects and (negative) political externalities. We focus on the deployment of rules by platforms, either formulated as terms of uses or automatically enforced as computer code. Further,

we argue, that in the case of digital platforms a large share of their key activities can be understood as the private regulation of user access and behavior.

Platforms as Private Regulators: Creating and Enforcing Rules

To explain how platforms jointly manage network effects and political externalities, we posit that an essential part of a digital platform's role is that of a private regulator — setting and enforcing rules over interactions taking place on the platform. We argue that these rules constrain and frame the access and behavior of platform users and thus influence the political externalities mediated by platforms. In turn, platforms' strategies to deal with political externalities can be studied and understood through the lens of their rule creation and enforcement.⁵ This starting point is also consistent with Boudreau and Hagiu's (2009) insight that platforms are rule-makers.

We further their insight by offering a fine-grained analysis of rule creation and enforcement by platforms. We build on legal literature on the regulation of cyberspace to take an expansive view of regulation by digital platforms (Reidenberg, 1997; Lessig 1998). In their most obvious form, the rules set by platforms include terms of uses and community standards among others. However, digital platforms have the distinctive characteristic of extensively using computer code to frame and determine what users can do and not do on the platform. As argued by Lessig (1998) designing and implementing code is fully a rule-making activity in that it creates as many constraints on platform users, if not more, as do laws, social norms, and market forces.

Political externalities mediated by platforms are ultimately originated in user behavior, which in turn is framed by the rules created and enforced by platforms. The goal of these rules

⁵ This does not imply that platforms are benevolent regulators who maximize collective welfare. Instead, we consider them to be self-interested regulators, who regulate others to maximize their own welfare. Moreover, the question of whether platforms should be subjected to external regulation (e.g., Cusumano, Gawer & Yoffie, 2021) is distinct from that of how platforms use rules to regulate their own users.

with respect to network effects, is to overcome market frictions such as high uncertainty, free-riding, or information asymmetry that may arise in the context of platform interactions (Boudreau & Hagiu, 2009; Evans, 2003; Luo & Kaul, 2019). By specifying sets of actions or outcomes (Ostrom, 1986), the rules created and enforced by platforms thus define the incentives and constraints that structure the behavior of platforms' user sides.

For instance, Zoom users *require* the meeting link, or details (i.e., meeting id and password) in order to access and join a meeting on the platform (Zoom, 2022). Similarly, WhatsApp *permits* a message to be forwarded up to a maximum of five per user (WhatsApp, 2022). Social media platforms such as Twitter and Facebook specify rules regarding content that is *prohibited* from being posted or shared by their users e.g., violent images and videos, or private information of individuals such as addresses, phone numbers, etc. (Twitter, 2020; Facebook, 2020). Further, platforms can change these rules frequently, at their own discretion, and may enforce rules heterogeneously across users, group(s) of users, or user sides (Klonick, 2017; Horwitz, 2021).

Platforms create and enforce three types of rules to facilitate interactions between various user sides (Crémer et al., 2019). First among the rules imposed by platforms are code (e.g., Application Programming Interface or APIs) and design features of platforms e.g., search rankings and filters (criteria and weights used), default options, feedback, screening, verification and recommendation systems etc. (Lessig, 1998; Crémer et al., 2019; Koo & Eesley, 2021). While these may be commonly seen as product features from a business perspective, they are also understood as a source of regulation specifically in the digital domain by legal scholars (e.g., Lessig, 1998 coining the phrase “code is law”).

Second, platforms impose rules that shape the relationship among different user sides, and rules that govern the relationship between a platform and its users. Implemented in the form of

terms of use or community standards these include rules governing the sharing of information, prohibition on sale of counterfeit or “immoral” goods, data access to third parties among others (Crémer et al., 2019; Liu & Weingast, 2017). Third, platforms’ terms of use also regulate who can join the platform and what different user sides are allowed to do e.g., offer presentation, price controls, parity clauses, type of selling mechanisms allowed, and limits on user creation and distribution of information or content (Hagiu, 2015; Liu & Weingast, 2017; Crémer et al., 2019).

Platforms’ Rule Choices to Mitigate (or not) Political Externalities

To achieve the goal of mitigating negative political externalities through regulation, platforms can choose (i) the type of rule to create, (ii) how to implement the rule, (iii) the intensity to which to enforce a rule, and (iv) the type of user activity in the public sphere that the platform seeks to regulate. We now evaluate each of these drivers of platforms’ rule choices in turn.

Platforms’ choices on rule creation

Regarding the type of rule created, platforms can consider three different options: whether a specific rule permits, requires, or prohibits a set of user actions or outcomes (Ostrom, 1986). Rules that *permit* user actions or outcomes are the least restrictive form of rules created by platforms. The level of restriction on user behavior further increases when a rule *requires* specific user actions, and is the most restrictive when a platform rule *prohibits* certain user actions or outcomes. To control political externalities, a platform will have to restrict what its users are doing and thus more restrictions are associated as the need to limit negative political externalities increases. Consequentially, as negative political externalities increase, we can expect that platforms are more likely to create rules that require and prohibit users’ actions rather than permit them. We thus postulate,

Proposition 10: The more a platform needs to curtail negative political externalities, the more likely it is for a platform to respond by setting rules that “require” vs. rules that “permit,” and rules that “prohibit” vs. rules that “permit.”

Platforms’ choices on rule implementation

There are trade-offs associated with platform choices on the different types of rule implementations. Rules implemented as code have the advantage of being automatically implemented, short of users hacking the platform’s code or finding loopholes. This is advantageous when platforms need to ensure the highest user compliance compared to adding another rule to their terms of use. Moreover, rules implemented as code, once set, require less human intervention than rules implemented as terms of use and offer higher potential for economies of scale, allowing to compensate for the loss of network effects. We thus hypothesize,

Proposition 11: The more a platform needs to curtail negative political externalities, the more likely it is for a platform to implement rules as code vs. rules stated in terms of use.

As an illustration, in April 2020, as most social, work, and educational activities shifted online in response to the CoVID-19 pandemic induced lockdowns globally, Zoom’s average daily meeting participants grew from 10 million in December 2019 to 300 million (Verge, 2020). Network effects contributed to user growth, aided by the ease of joining a Zoom meeting with a single link, without the need for a Zoom user account. However, in parallel, Zoom users faced negative externalities in the form of privacy and security breaches e.g., “Zoom bombing” i.e., unauthorized persons disrupting meetings and subjecting users to violent or explicit content. As a result of user and media backlash, Zoom made the trade-off of reducing network effects in the short run, to mitigate these externalities, by introducing an additional layer of security by requiring

meetings to have a password. This rule was implemented in the form of code, passed to the users as a software update in the then latest version of Zoom (Verge, 2020).

Platforms' choices on rule enforcement

Platforms can also vary the intensity of enforcement across users. Most importantly, a platform can discriminate among its users in function of their contribution to network effects, which need not be perfectly correlated with their contribution to political externalities. Since contributions to network effects may be highly concentrated on a few users, it may be advantageous for the platform to be especially lenient on these users, while being much stricter on other users who are only marginal contributors.

There are several ways to implement different degrees of discrimination in rule enforcement. Platforms can choose to restrict user activity uniformly across all users and user sides. For instance, WhatsApp restricted the number of forwarded messages per user to five in response to the spread of political mis-information in India (Wagner, 2018). Alternatively, platforms may prohibit user activity of specific users only through a combination of terms of use, and code. For example, Twitter notifies specific user activity (Tweets) that may contain sensitive content or fraudulent information (Twitter, 2020). In a more targeted way, platforms may even suspend or dis-intermediate users or user groups (“de-platform”) i.e., prevent them from continuing to be an active member of or actively participating on the platform temporarily or permanently, respectively. For example, in January 2017, Reddit banned the subreddit r/Altright for violating the terms of service of the website by “doxxing” i.e., posting on the subforum the real-life identities and locations of people without their consent (Yeaton, 2021).

The most severe restrictions (i.e., an account suspension or “de-platforming”) generally results from the application of the terms of use of platforms and has been found to be enforced

with discretion (Klonick, 2017; Horwitz, 2021). This discretion can be leveraged by platforms to purposefully limit negative political externalities outside the platform while preserving, as much as possible, the benefits of network effects within the platform.

To understand how platforms may use discretion in the application of their own rules, we theorize that two measurable dimensions of user heterogeneity matter. First, the extent to which a user generates network effects, and second, the extent to which the same user generates negative political externalities. Since these two dimensions are not exactly correlated, a platform could potentially use its discretion to skew its membership to remove members who are generating the most negative political externalities, while retaining those who are creating the most network effects. In other words, what triggers a user's account suspension from a platform is not only the overall negative political externalities they generate, but also the relative dependence of the platform on the user's contribution to network effects.

Proposition 12: The higher the contribution of a user to network effects, the less likely it is for a platform to subject this user to the enforcement of rules seeking to restrict negative political externalities as compared to other users responsible for similar level of negative political externalities.

The selective enforcement of rules by platforms depending on users' contribution to network effects can be seen from media reports that have shown that Facebook had a specific process for dealing with the moderation of content of high-profile individuals named "Xcheck" (Horwitz, 2021) which effectively shielded users with large number of followers such as media, political, and sport personalities from the indiscriminate enforcement of rules preventing harassment and bullying. Such users' activity, even when in violation of the platforms' terms of

use, personalities were escalated to a special decision-making body and reportedly given more lenient treatment.

In particular, how major platforms dealt with Donald Trump, perhaps the one of the most network effects generating user, is illustrative. In the face of repeated abuse of Twitter's rules by Donald Trump, both the rules and their enforcement were changed over time. After a Trump tweet threatening war with North Korea, Twitter's CEO, Jack Dorsey, refused to take down the tweet even though it was a clear violation of rules against the incitement of violence. The "newsworthiness" argument was applied earlier by Facebook for not taking down some of Trump's Facebook posts that were deemed to be hate speech (Guardian, 2020).

Twitter's exception was then formalized as a rule exempting all political leaders (Guardian, 2020) but leaving Twitter with the ability to apply a label to specific tweets. Later, in the face of even more controversy, as Trump used the platform to disseminate disinformation concerning the 2020 U.S. presidential election, Twitter finally implemented its own policy and applied labels to the infringing tweets (Guardian, 2020). Eventually, Trump was banned from Twitter in January 2021 in the wake of the Capitol riots of January 6, 2021. This example is illustrative of how what started as *ad hoc* exceptions (such as those motivated by "newsworthiness") can become part of a first set of rules, which were then superseded by new and more restrictive rules, that were not initially enforced but finally culminated with the removal of the specific user from the platform.

The selective enforcement of rules, however, may have a subtle impact on the composition of a platform's membership itself because of a selection effect. A corollary of Proposition 12 is that the population of users who generate negative political externalities becomes depleted in inverse probability with their contribution to network effects. This implies that the proportion of high-network effect users among the population of users that generate negative political

externalities will increase as low-network effect users are selected out due to platforms' rule enforcement. We thus argue,

Proposition 13: The more a platform uses discretion to enforce its rules against negative political externalities, the more likely it is that the platform has a higher the proportion of high-network effect users among those that cause negative political externalities.

Platforms' choices on users' activity to be regulate

Platform choices on rule creation and enforcement to mitigate negative political externalities are also driven by the type of user activities in the digital public sphere. We argue that as users are active in the digital public sphere, political externalities created through association are strongest. This is because association has the highest potential impact on a political system by allowing the coordination of the actions of many individual users, either through democratic institutions when they exist (political party, participation to elections, peaceful demonstration), or through other modes of action (e.g., riots, armed resistance) (Tufekci & Wilson, 2012; Zhuravskaya et al., 2020). For a platform, the most efficient way to reduce such an effect is to curtail the possibilities of association, either by suspending or disintermediating specific users or user groups or by systematically changing rules so as to reduce how strongly association among users can be facilitated.

The second most efficient move is to reduce the possibilities of participation in the public sphere. Participation is the second most consequential activity on the public sphere as it drives the largest creation of content as well as is directly oriented towards influencing other political actors. Reducing participation also reduces association further as association builds on participation. Only as a last resort does a platform reduce the possibilities of communication since communication is the basis upon which content-sharing platforms are built. Accordingly, we contend,

Proposition 14: The more a platform needs to curtail negative political externalities, the more likely it is for a platform to first prioritize enacting rules that reduce possibilities of association, second rules that reduce possibilities of participation, and finally rules that reduce possibilities of communication.

A series of studies by King, Pan & Roberts (2013, 2014, 2017) and Qin et al. (2017) offer evidence that is consistent with this proposition. These scholars researched how the Chinese state conducted online censorship of public internet forums and social media — an activity of regulation of the public sphere although performed by an authoritarian state. They found that the activity of censorship of specific posts or ban on users was more likely to affect content when users were directly attempting to foster collective action (i.e., association), as opposed to when users and users' content was simply reporting political issues (e.g., corruption).

DISCUSSION

The analysis of how platforms generate political externalities carries important implications for theory in management and for policy. In contrast to prior research that primarily emphasized network effects as the key driver of platforms' success, our analysis exposes that to fully characterize platform strategy, the resultant political externalities generated also need to be factored in as these are co-produced by the same platform actions that enable network effects. From the perspective of platforms, our paper highlights the complex tradeoffs involved in managing network effects through rule creation and enforcement, while mitigating (realizing) negative (positive) political externalities, given that these externalities may be multi-leveled and heterogeneous in their impact across various actors.

Since the primary objective of platforms is to maximize network effects, our paper posits that at the baseline there is a minimum level of negative externalities that are not internalized by

the platform. Further, platforms are likely to prioritize managing externalities within their user base, not accounting for the negative impact on non-users. Our analysis also highlights that when platforms do attempt to mitigate negative political externalities, they are likely to restrict user membership and activity for those users whose relative dependence of negative externalities versus network effects is the least favorable i.e., selectively enforced based on users' relative contribution to network effects.

From a policy perspective, particularly the political externalities generated as a result of platforms' private regulation have implications beyond the issues of data privacy and competition policy. As our analysis suggests there is a larger question of whether private, for-profit entities can be allowed to act as regulators, particularly when their business decisions set limits on the behavior of users as political agents and cause externalities for their political interactions and ability to influence other political actors.

Contributions

First, we contribute theoretically to nascent research on externalities arising in the context of platforms. Specifically, we theorize on the origins of political externalities that arise due to platforms' actions, particularly in their role as private regulators. Research on platform governance has thus far only analyzed the impact of rules created and enforced by platforms in terms of their positive impact on network effects i.e., encouraging user membership and activity on the platform. However, by explicating how political externalities may also result from the same platform actions, our paper extends the scope of their impact.

Second, the baseline model developed in our paper can be applied more generally to understand the interactions between non-pecuniary externalities and network effects and the resultant strategic trade-offs for platforms. By examining when, how, and why platforms respond

to non-pecuniary externalities, this paper provides a theoretical basis for unpacking underlying platform decision-making particularly for empirical studies on diffusion of mis-information, political influence operations among others (Allcott & Gentzkow, 2017; Farrell & Newman, 2019).

Third, by applying our theoretical model to political externalities, our paper contributes to contemporary calls for research in management for the evaluation of the simultaneous and interdependent, public and private character of organizations (Mahoney, McGahan & Pitelis, 2009). By explicitly modeling the impact of platform actions on non-users, in addition to users, we also contribute to research on how firm market actions interact and shape the non-market environment for other stakeholders (Ahuja, Capron, Lenox & Yao, 2018).

Boundary Conditions and Future Research Avenues

In our paper, platforms refer to digital platforms with a critical mass of users i.e., network effects exist. Further, we focus on political externalities that arise particularly due to user activity on social media, communication, and other content sharing platforms. Future research could evaluate other non-pecuniary externalities that may arise in this context, and also extend it to transaction platforms e.g., Amazon, Uber etc. (Cusumano, 2020).

We recognize that neither platforms, nor political actors are monolithic entities but are composed of individuals, political representatives and organizations, and various other actors with divergent interests (Eichensehr, 2018). We acknowledge that there is significant heterogeneity across platforms in terms of their organizational forms and the product or service they offer (Crémer et al., 2019). Similarly, there is significant variation across political actors in terms of regimes, institutional environments, ideologies, resources, the relative power of various political, economic, and social actors involved, and how divergent interests within each of these entities aggregate (Mahoney et al., 2009). Additional research could shed light on these topics.

The analysis we present in our paper is also subject to change as the various actors involved - platforms, users, and non-users - evolve with time. Such changes may be related to learning, the accumulation of experience, and the response of these actors with respect to the externalities created (Henisz & Delios, 2004). Specifically, further research in the context of political externalities, is also required to analyze how temporal changes may be driven by broader institutional changes in the economic or political environment, such as elections, or any other kind of regime change and the associated policy changes that may occur as a result (Kivleniece & Quelin, 2012).

Conclusion

In this paper we contribute to research on how platforms' actions to manage network effects also create political externalities for users and non-users. The paper explicates the origin of these externalities, the interplay between political externalities and network effects, and the conditions under which platforms manage (or not) the strategic trade-off of balancing network effects while mitigating (negative) externalities. In addition to theoretical implications for platform strategy, our paper contributes to the broader discussion on the emergence and role of platforms in society.

REFERENCES

- Ahuja, G., Capron, L., Lenox, M., & Yao, D. A. (2018). Strategy and the institutional envelope. *Strategy Science*, 3(2), ii–x.
- Allcott, H., & Gentzkow, M. (2017). Social media and fake news in the 2016 election. *Journal of Economic Perspectives*, 31(2), 211–236.
- Belleflamme, P., & Peitz, M. (2021). *The Economics of Platforms*. Cambridge University Press.
- Boudreau, K. J., & Hagiu, A. (2009). Platform rules: Multi-sided platforms as regulators. *Platforms, Markets and Innovation*, 1, 163–191.
- Bourreau, M., & Perrot, A. (2020). Digital platforms: Regulate before it's too late. *Notes Du Conseil D'analyse Economique*, 6, 1–12.
- Breton, T. (2021). Retrieved from <https://www.politico.eu/article/thierry-breton-social-media-capitolhill-riot/>, Accessed on 10 January 2021.
- Buchanan, J. M., & Stubblebine, W. C. (1962). Externality. In *Classic papers in natural resource economics* (pp. 138–154). Springer.
- Caillaud, B., & Jullien, B. (2003). Chicken & egg: Competition among intermediation service providers. *RAND Journal of Economics*, 309–328.
- Campante, F., Durante, R., & Sobbrío, F. (2018). Politics 2.0: The multifaceted effect of broadband internet on political participation. *Journal of the European Economic Association*, 16(4), 1094–1136.
- Cohen, J., & Fung, A. (2021). Democracy and the Digital Public Sphere. In L. Bernholz, H. Landemore, & R. Reich (Eds.), *Digital technology and democratic theory* (pp. 23–61). University of Chicago Press.
- Crémer, J., de Montjoye, Y.-A., & Schweitzer, H. (2019). Competition policy for the digital era. *Report for the European Commission*.
- Cusumano, M. (2020). The evolution of research on industry platforms. *Academy of Management Discoveries*, ja.
- Cusumano, M. A., Gawer, A., & Yoffie, D. B. (2021). Can self-regulation save digital platforms? *Industrial and Corporate Change*, <https://doi.org/10.1093/icc/dtab052>
- Dorobantu, S., Kaul, A., & Zelner, B. (2017). Nonmarket strategy research through the lens of new institutional economics: An integrative review and future directions. *Strategic Management Journal*, 38(1), 114–140.
- Edelman, B., Luca, M., & Svirsky, D. (2017). Racial discrimination in the sharing economy: Evidence from a field experiment. *American Economic Journal: Applied Economics*, 9(2), 1–22.
- Eichensehr, K. E. (2018). Digital Switzerlands. *U. Pa. L. Rev.*, 167, 665.

- Eisenmann, T., Parker, G., & Van Alstyne, M. (2011). Platform envelopment. *Strategic Management Journal*, 32(12), 1270–1285.
- Enikolopov, R., Makarin, A., & Petrova, M. (2020). Social media and protest participation: Evidence from Russia. *Econometrica*, 88(4), 1479–1514.
- Evans, D. S. (2003). Some empirical aspects of multi-sided platform industries. *Review of Network Economics*, 2(3).
- Facebook (2020). *Facebook Community Standards* Retrieved from <https://www.facebook.com/communitystandards/> , Accessed on 10 December 2020.
- Farrell, H., & Newman, A. L. (2019). Weaponized interdependence: How global economic networks shape state coercion. *International Security*, 44(1), 42–79.
- Freelon, D., Marwick, A., & Kreiss, D. (2020). False equivalencies: Online activism from left to right. *Science*, 369(6508), 1197–1201.
- Fujiwara, T., Müller, K., & Schwarz, C. (2021). *The Effect of Social Media on Elections: Evidence from the United States* (Working Paper No. 28849; Issue 28849). National Bureau of Economic Research. <https://doi.org/10.3386/w28849>
- Goldfarb, A., & Tucker, C. (2019). Digital economics. *Journal of Economic Literature*, 57(1), 3–43.
- Guardian (2020, May 28). Zuckerberg says Facebook won't be 'arbiters of truth' after Trump threat, Retrieved from <https://www.theguardian.com/technology/2020/may/28/zuckerberg-facebook-police-online-speech-trump>
- Guardian (2021, February 16). Clubhouse app: What is it and how do you get an invite to the exclusive audio app? Retrieved from <https://web.archive.org/web/20210301150556/https://www.theguardian.com/technology/2021/feb/17/clubhouse-app-invite-what-is-it-how-to-get-audio-chat-elon-musk>.
- Guardian (2022, March 20) TikTok was 'just a dancing app'. Then the Ukraine war started, Retrieved from <https://www.theguardian.com/technology/2022/mar/19/tiktok-ukraine-russia-war-disinformation>
- Guriev, S., Melnikov, N., & Zhuravskaya, E. (2021). 3g internet and confidence in government. *The Quarterly Journal of Economics*, 136(4), 2533–2613.
- Habermas, J. (2006). Political communication in media society: Does democracy still enjoy an epistemic dimension? The impact of normative theory on empirical research. *Communication Theory*, 16(4), 411–426.
- Hagiu, A. (2015). Strategic decisions for multisided platforms. *MIT SLOAN MANAGEMENT REVIEW*, 4–13.
- Hagiu, A., & Wright, J. (2015). Marketplace or reseller? *Management Science*, 61(1), 184–203.

- Henisz, W. J., & Delios, A. (2004). Information or influence? The benefits of experience for managing political uncertainty. *Strategic Organization*, 2(4), 389–421.
- Horwitz, J. (2021, September 13). WSJ Files. *Wall Street Journal*. <https://www.wsj.com/articles/facebook-files-xcheck-zuckerberg-elite-rules-11631541353>
- Jia, N., Markus, S., & Werner, T. (2021). Theoretical Light in Empirical Darkness: Illuminating Strategic Concealment of Corporate Political Activity. *Academy of Management Review*, *ja*.
- Katz, M. L., & Shapiro, C. (1985). Network externalities, competition, and compatibility. *The American Economic Review*, 75(3), 424–440.
- King, G., Pan, J., & Roberts, M. E. (2013). How censorship in China allows government criticism but silences collective expression. *American Political Science Review*, 107(2), 326–343.
- King, G., Pan, J., & Roberts, M. E. (2014). Reverse-engineering censorship in China: Randomized experimentation and participant observation. *Science*, 345(6199), 1251722.
- King, G., Pan, J., & Roberts, M. E. (2017). How the Chinese government fabricates social media posts for strategic distraction, not engaged argument. *American Political Science Review*, 111(3), 484–501.
- Kivleniece, I., & Quelin, B. V. (2012). Creating and capturing value in public-private ties: A private actor's perspective. *Academy of Management Review*, 37(2), 272–299.
- Klonick, K. (2017). The new governors: The people, rules, and processes governing online speech. *Harv. L. Rev.*, 131, 1598.
- Koo, W. W., & Eesley, C. E. (2021). Platform governance and the rural–urban divide: Sellers' responses to design change. *Strategic Management Journal*, 42(5), 941–967.
- Lambin, X., & Palikot, E. (2019). *The impact of online reputation on ethnic discrimination*. Working Paper.
- Le Monde (2021). Retrieved from <https://www.lemonde.fr/pixels/article/2021/01/09/vif-debatapres-la-fermeture-du-compte-twitter-personnel-de-donald-trump>, Accessed on 10 January 2021
- Lessig, L. (1998). The laws of cyberspace. *Readings in Cyberethics*, 134, 136.
- Liebowitz, S. J., & Margolis, S. E. (1994). Network externality: An uncommon tragedy. *Journal of Economic Perspectives*, 8(2), 133–150.
- Liu, L., & Weingast, B. R. (2017). Taobao, federalism, and the emergence of law, Chinese style. *Minn. L. Rev.*, 102, 1563.
- Luo, J., & Kaul, A. (2019). Private action in public interest: The comparative governance of social issues. *Strategic Management Journal*, 40(4), 476–502.

- Mahoney, J. T., McGahan, A. M., & Pitelis, C. N. (2009). Perspective—The interdependence of private and public interests. *Organization Science*, 20(6), 1034–1052.
- Mocanu, D., Rossi, L., Zhang, Q., Karsai, M., & Quattrociocchi, W. (2014). Collective attention in the age of (mis)information. *ArXiv:1403.3344 [Physics]*. <http://arxiv.org/abs/1403.3344>
- Murphy, J., Vallières, F., Bentall, R. P., Shevlin, M., McBride, O., Hartman, T. K., McKay, R., Bennett, K., Mason, L., & Gibson-Miller, J. (2021). Psychological characteristics associated with COVID-19 vaccine hesitancy and resistance in Ireland and the United Kingdom. *Nature Communications*, 12(1), 1–15.
- Ng, L. H., & Taeihagh, A. (2021). How does fake news spread? Understanding pathways of disinformation spread through APIs. *Policy & Internet*, 13(4), 560–585.
- Nicas J. & Alba D. (2021). Retrieved from <https://www.nytimes.com/2021/01/10/technology/parlerapp-trump-free-speech> , Accessed on 11 January 2021.
- Ostrom, E. (1986). An agenda for the study of institutions. *Public Choice*, 48(1), 3–25.
- Ostrom, E. (2008). Tragedy of the commons. *The New Palgrave Dictionary of Economics*, 2.
- Paik, Y., Kang, S., & Seamans, R. (2019). Entrepreneurship, innovation, and political competition: How the public sector helps the sharing economy create value. *Strategic Management Journal*, 40(4), 503–532.
- Parker, G. G., & Van Alstyne, M. W. (2005). Two-sided network effects: A theory of information product design. *Management Science*, 51(10), 1494–1504.
- Qin, B., Strömberg, D., & Wu, Y. (2017). Why does China allow freer social media? Protests versus surveillance and propaganda. *Journal of Economic Perspectives*, 31(1), 117–140.
- Reidenberg, J. R. (1997). Lex informatica: The formulation of information policy rules through technology. *Tex. L. Rev.*, 76, 553.
- Ricart, J. E., Snihur, Y., Carrasco-Farré, C., & Berrone, P. (2020). Grassroots resistance to digital platforms and relational business model design to overcome it: A conceptual framework. *Strategy Science*, 5(3), 271–291.
- Rochet, J., & Tirole, J. (2006). Two-sided markets: A progress report. *The RAND Journal of Economics*, 37(3), 645–667.
- Rochet, J.-C., & Tirole, J. (2003). Platform competition in two-sided markets. *Journal of the European Economic Association*, 1(4), 990–1029.
- Rohlf, J. (1974). A theory of interdependent demand for a communications service. *The Bell Journal of Economics and Management Science*, 16–37.
- Signal Support (2022, April 11). <https://support.signal.org/hc/en-us/articles/360007061452-Does-Signal-send-my-number-to-my-contacts->

Schaub, M., & Morisi, D. (2020). Voter mobilisation in the echo chamber: Broadband internet and the rise of populism in Europe. *European Journal of Political Research*, 59(4), 752–773.

Telegram (2022, April 11). Telegram. <https://telegram.org/faq>

Tufekci, Z., & Wilson, C. (2012). Social media and the decision to participate in political protest: Observations from Tahrir Square. *Journal of Communication*, 62(2), 363–379.

Twitter (2020). *The Twitter Rules*. Retrieved from <https://help.twitter.com/en/rules-and-policies/twittrrules>, Accessed on 10 December 2020.

Verge (2020). Retrieved from <https://www.theverge.com/2020/4/23/21232401/zoom-300-million-users-growth-coronavirus-pandemic-security-privacy-concerns-response>

Wagner K. (2018) Retrieved from <https://www.vox.com/2018/7/19/17594156/whatsapp-limit-forwarding-fake-news-violence-india-myanmar>

WhatsApp (2022, January 26)

<https://web.archive.org/web/20220126061618/https://faq.whatsapp.com/kaios/chats/how-to-create-a-group/?lang=en>

Yahoo News (2021). Retrieved from <https://news.yahoo.com/angela-merkel-finds-twitter-halt-120524650>, Accessed on 11 January 2021.

Yeaton, M. R. (2021). *Cultural Diffusion through Language: How Communication Networks Influence Culture in the Age of Digitization*. Columbia University.

Zhuravskaya, E., Petrova, M., & Enikolopov, R. (2020). Political effects of the internet and social media. *Annual Review of Economics*, 12, 415–438.

Zoom Support. (2022, April 11). <https://archive.ph/NPr1A>

TABLE 1
The Digital Public Sphere, Platform Rules, and Political Externalities

Activity in the digital public sphere	Corresponding platform rules and design features affecting public sphere activity	Corresponding examples of political externalities
<p style="text-align: center;"><i>Communication</i></p> <p>Ability to connect with another user of the platform and send information and content</p>	<p><i>Rules facilitating establishment of contact and communication</i></p> <ul style="list-style-type: none"> • Who can contact whom in the network: <ul style="list-style-type: none"> ○ Requires knowing the phone number (WhatsApp, Signal, Telegram) ○ Requires a referral to get in the network ○ Equivalent of a public phone book (Twitter) ○ A convenor creates a link that is made available to a select few (Zoom, Discord) via another network ○ Physical proximity between two otherwise unrelated users (Telegram) • Ease of access to the platform itself • Algorithmic recommendations to connect to members who are not in the initial social graph 	<p><i>Easier spread and access to ideas and political content as platforms enable reaching others at scale</i></p> <ul style="list-style-type: none"> • Example of positive externalities <ul style="list-style-type: none"> ○ More viewpoints are available ○ More diversity of otherwise suppressed voices thanks to lower barriers to entry • Example of negative externalities <ul style="list-style-type: none"> ○ More opportunities to spread misinformation and disinformation
<p style="text-align: center;"><i>Participation</i></p> <p>Creation and exchange of arguments with a view to establish common grounds and disagreement</p>	<p><i>Rules facilitating participation to the deliberation of political issues</i> (in addition to communication)</p> <ul style="list-style-type: none"> • Presence (or absence) of rules allowing and enhancing deliberation <ul style="list-style-type: none"> ○ Type of media of communication: voice, written, video, pictures, exchange of documents etc. ○ Rules facilitating argumentation and deliberation: <ul style="list-style-type: none"> ▪ Ability to link evidence outside of the platform ▪ Votes and polls ▪ Support for multiple languages (e.g., non-Latin character sets) ○ Rules facilitating persuasion <ul style="list-style-type: none"> ▪ Link to rich media ▪ Enhance users' ability to produce content • Algorithmic recommendations of content deemed interesting to a broader audience 	<p><i>Change and influence opinions of members of the public sphere</i></p> <ul style="list-style-type: none"> • Example of positive externalities <ul style="list-style-type: none"> ○ Richer arguments and debates ○ More evidence can be shared • Example of negative externalities <ul style="list-style-type: none"> ○ Easier to deceive and fabricate material ○ More ways to covertly manipulate audiences
<p style="text-align: center;"><i>Association</i></p> <p>Forms the basis for collective action</p>	<p><i>Rules to facilitate association</i> (in addition to communication and participation)</p> <ul style="list-style-type: none"> • Creation of group-specific content and moderation <ul style="list-style-type: none"> ○ Community-based moderation • Rules to organize in physical world <ul style="list-style-type: none"> ○ Payment system integration for fees ○ E-commerce for raising fees ○ Petition infrastructure ○ Certification of who is in and who is outside the association 	<p><i>Formation and emergence of groups that would not have organized otherwise</i></p> <ul style="list-style-type: none"> • Example of positive externalities <ul style="list-style-type: none"> ○ Emergence of new voices that represent relevant stakeholders ○ Collective action against authoritarian regimes • Example of negative externalities <ul style="list-style-type: none"> ○ Political extremism seeking to disempower other groups ○ Formation of groups undermining democratic institutions including by political violence