The Economics of Social Media

Journal of Economic Literature (2024)

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Introduction

Social media platforms is an an important part of the modern economy

- 4.76 billion social media users worldwide - 60% of the population / 90% of internet users
- Average American spends 2.5 hours a day on social media
- Teens spend almost 5 hours a day

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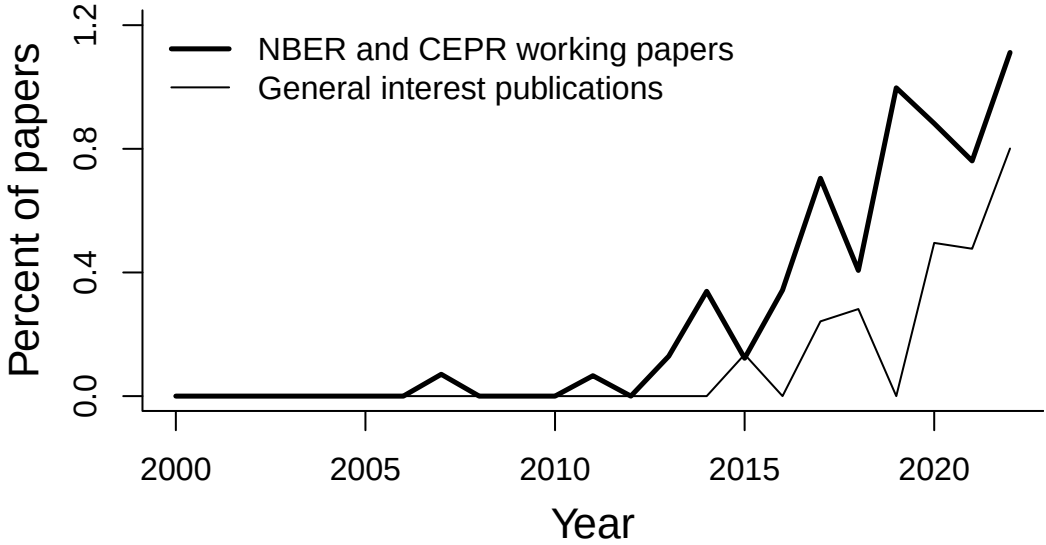
- Raises challenges like misinformation, harmful content, and mental health concerns

Ongoing policy debates and regulations: e.g., Germany's Network Enforcement Act, Europe's 2022 Digital Services Act, Australia's 2024 Online Safety Amendment (Social Media Minimum Age) Bill

Surge in Economics Research on Social Media



Our Review Paper

Provide a guide of the economics literature on social media

- Defines what social media is and what makes it unique
- Introduces a framework with three stages of the content life cycle: production, distribution, and consumption
- Organizes key insights and findings around these three stages

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Caveat: this review is from 2024 and economics of social media is a fast-evolving area

Contribution to the Literature

Work on social media as data and experimental variation – to be covered in detail in the second part of the tutorial

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Other reviews on related topics: the political effects of social media (Zhuravskaya, Petrova and Enikolopov, 2020; Persily and Tucker, 2020; Campante, Durante and Tesei, 2023; Lorenz-Spreen et al., 2023), privacy (Acquisti, Taylor and Wagman, 2016), finance (Cookson, Mullins and Niessner, 2024)

- We focus on empirical papers in economics, and highlight the key economic forces at play across the social media content life cycle

This Talk

For each of production, distribution, and consumption:

- Describe high-level incentives and provide a snapshot of research on the economics of social media
- Highlight open questions and suggest ideas for future research

Defining Social Media

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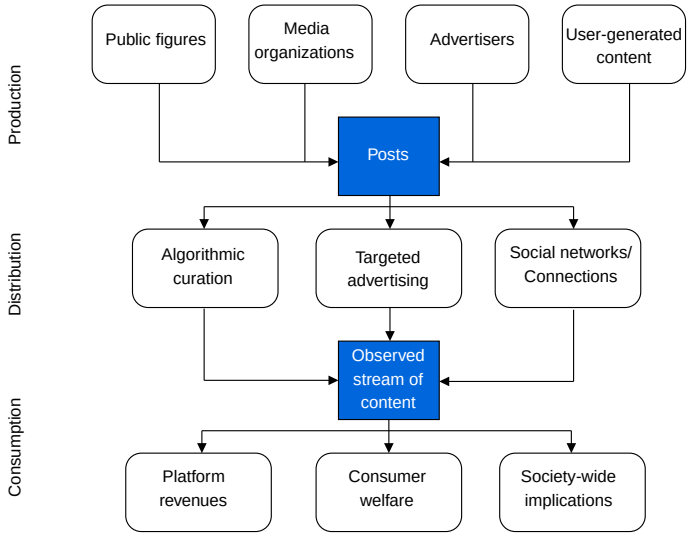
We break it down into three components:

1. Social: Content is mostly generated by users and involves interactions
2. Media: Two-sided market with users on one side and advertisers on the other
3. Platforms: Internet-based applications that use algorithms to deliver content

Our definition: **Two-sided platforms that primarily host user-generated content distributed via algorithms, while allowing for interactions among users**

Stylized Framework



Centered around the flow of content from production, to distribution, to consumption

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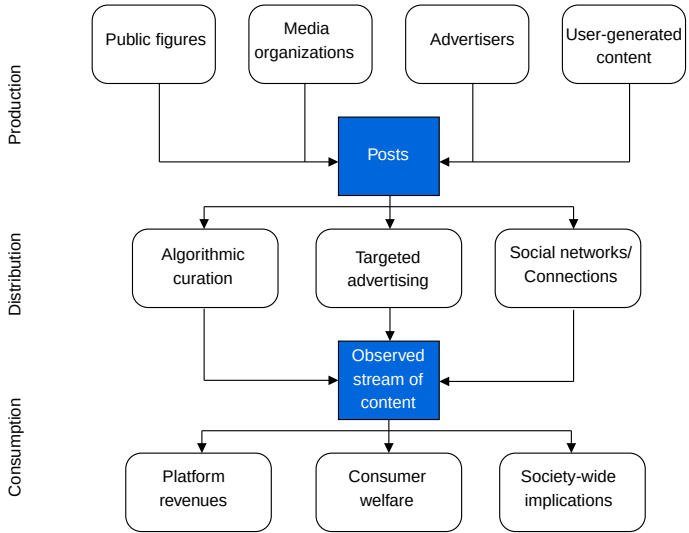

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Building block: a post $x \in \mathbb{R}^K$, vector of characteristics (e.g., sentiment expressed, ad or not)

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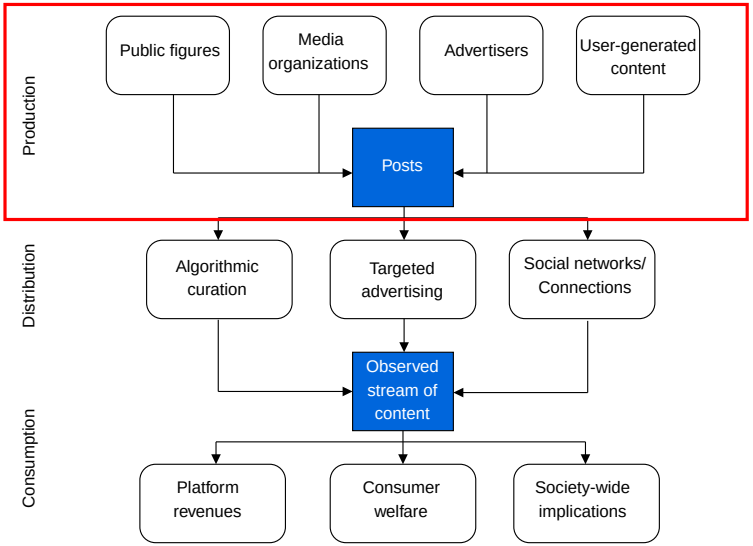

Main economic agent: producer indexed by *j*

The Producer's Problem

Producer j solves

$$\max_{\mathbf{x}_j^p} \ \mathbb{E}[u_j^p(\mathbf{x}_j^p)] - c_j(\mathbf{x}_j^p) \tag{1}$$

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The types and quantity of content depend on:

- producer beliefs $\mathbb{E}[\cdot]$
- monetary and nonmonetary rewards $u_j^p(\mathbf{x}_j^p)$
- cost $c_j(\mathbf{x}_j^p)$ of producing the content

Production: Research Questions

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$$\max_{\mathbf{x}_j^p} \ \mathbb{E}[u_j^p(\mathbf{x}_j^p)] - c_j(\mathbf{x}_j^p) \tag{2}$$

How do incentives affect content produced on social media?

Production: Research Questions

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- What shapes $u_j^p(\mathbf{x}_j^p)$ and subsequently the quantity and type of content that gets produced

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- What shapes $u_j^p(\mathbf{x}_j^p)$ and subsequently the quantity and type of content that gets produced

How can the production of harmful content be deterred?

- What can be done to make it more costly to produce (increasing $c_j(\mathbf{x}_j^p)$) or shifting the expectations about its probability of distribution (shifting $\mathbb{E}[\cdot]$)

How do incentives affect content produced on social media?

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What shapes $u_j^p(\mathbf{x}_j^p)$?

Nonmonetary incentives to share or produce content (Abreu and Jeon, 2020; Acemoglu, Ozdaglar and Siderius, Forthcoming; Filippas, Horton and Lipnowski, 2021; Bursztyn et al., 2023*b*; Guriev et al., 2023):

1. receiving attention or attracting eyeballs
2. improving social image or reputation
3. receiving peer awards or feedback
4. persuading others
5. intrinsic or altruistic motives (including keeping up with friends)

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Nonmonetary incentives (Eckles, Kizilcec and Bakshy, 2016; Huang and Narayanan, 2020; Mummalaneni, Yoganarasimhan and Pathak, 2023; Srinivasan, 2023)

- moderately increase the quantity and frequency of content produced, and small effect on quality of content
- can propagate via the recipient of an incentive becoming more likely to give nonmonetary incentives to other producers

Monetary incentives such as ad-revenue-sharing programs have a strong positive effect on quantity and mixed effects on quality

How can the production of harmful content be deterred?

What can be done to increase $c_j(\mathbf{x}_j^p)$ or shift $\mathbb{E}[\cdot]$ for harmful content?

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One solution: content moderation by platform or third parties (e.g., fact checkers, users, NGOs)

How can the production of harmful content be deterred?

Common interventions (e.g., Henry, Zhuravskaya and Guriev 2022; Pennycook and Rand 2022; Athey et al. 2023*b*; Roozenbeek et al. 2022; Ershov and Morales 2024; Guriev et al. 2023; Beknazar-Yuzbashev et al. 2022; Jiménez Durán 2022):

- Misinformation: Nudges, fact-checking, digital literacy, friction. Nudging users to think about accuracy and digital literacy seem to be the most effective

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- Misinformation: Nudges, fact-checking, digital literacy, friction. Nudging users to think about accuracy and digital literacy seem to be the most effective
- Hate speech: Counterspeech, content filtering, ex-post content moderation (e.g., bans). Counterspeech and content filtering can reduce hate speech, but effect sizes are small, while ex-post moderation has limited deterrence effects on future harmful content

Production: Open Questions

How much do monetary incentives crowd out nonmonetary incentives?

What are the labor market dynamics of being a content creator (e.g., unions, contracts)?

What are the effects of moderation policies implemented at scale (e.g., community notes, AI-powered moderation)?

What is the effect of hate speech and other types of harmful content on user interactions with advertisements?

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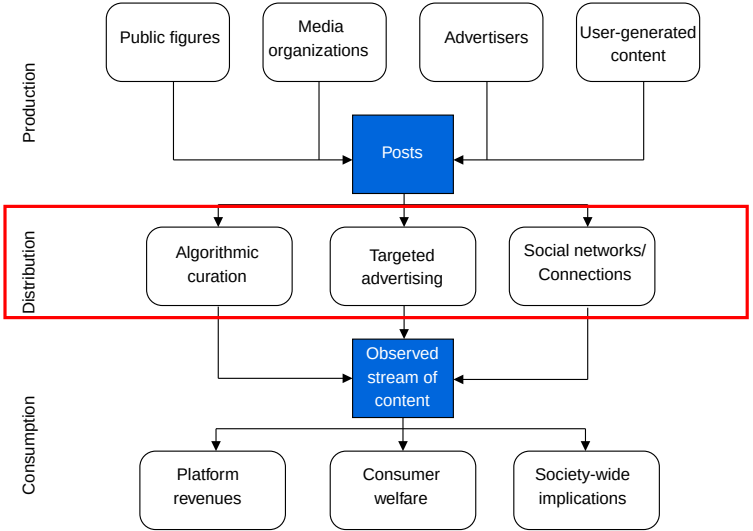

Main economic agent: platform

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Revenue maximization problem:

- for each user i, choose a personalized subset $\mathbf{x}_i$ from the total pool of posts $\cup_j \mathbf{x}_j^p$ to show the user
- (long-run) time spent or user engagement on the platform $t_i(\mathbf{x}_i)$
- monetary gain from each unit of user time spent (e.g., in an advertising-based model: ad load x average ad price) $\alpha(\mathbf{x}_i)$

Distribution: Research Questions

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- $\mathbf{x}_i$ to show given on and off-platform data (e.g., social networks)

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Ads based on auctions among advertisers

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Common concerns:

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- rabbit hole: no evidence on YouTube’s recommendation system driving users into rabbit holes (Hosseinmardi et al., 2021; Chen et al., 2023)
- algorithmic bias: depends on the platform and algorithm - e.g., news feed vs. friend recommendation (Agan et al., 2023)

Do ads work?

Ads can be effective, with substantial heterogeneity in performance based on advertiser sophistication (Tadelis et al., 2023), and help promote social causes (Breza et al., 2021; Athey et al., 2023*a*)

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Concern:

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Trade-off: platform profits via high-quality targeting vs. consumer privacy

- Restriction to data access has negative impacts on advertisers (Wernerfelt et al., 2022; Aridor et al., 2024)

Distribution: Open Questions

What alternative models for distributing social media content could increase social welfare, and how can these models be implemented in practice?

How do newer platforms (e.g., TikTok) distribute content, and what are their effects (e.g., Kalra 2025)?

What are the welfare impacts of privacy regulation — for consumers, advertisers, and platforms?

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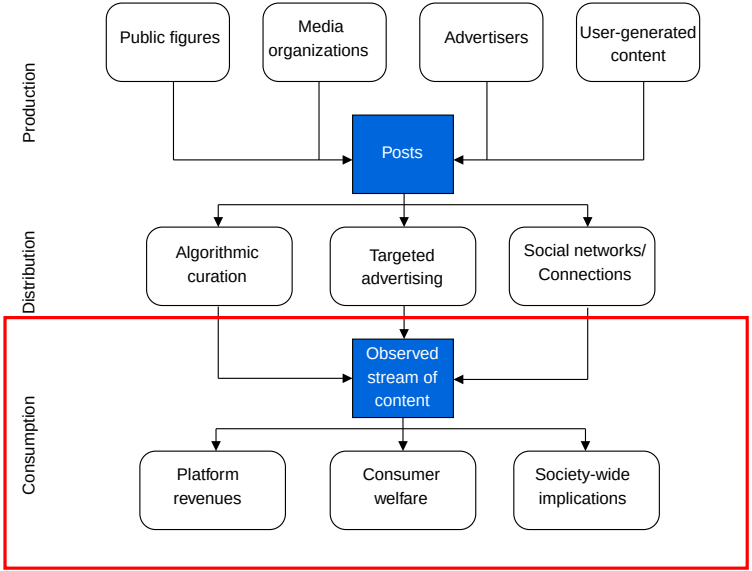

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Time allocation problem:

- time spent on social media t_i
- time spent on other activities $\mathbf{a}_i$

Consumption: Research Questions

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What enters into expected utility $\mathbb{E}[u_i^c(t_i, \mathbf{a}_i; \mathbf{x}_i)]$?

- the role of consumption spillovers, time inconsistency, and habit formation
- welfare measures

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- channels for aggregate impacts
- case studies on political impacts on democracies

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How do consumer substitute across platforms?

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Consumption spillovers

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Habit formation

- utility from current consumption depends on past consumption choices (Aridor, Forthcoming; Allcott et al., 2020; Allcott, Gentzkow and Song, 2022)

Self-control problems

- preference inconsistency (Hoong, 2021; Allcott, Gentzkow and Song, 2022)

Digital addiction

Social media is habit forming and involves self-control problems – two features of addictive goods (Allcott, Gentzkow and Song, 2022)

Substantial heterogeneity across users

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Consumer Welfare

Users need to be paid significant amount to stop using social media (Brynjolfsson, Collis and Eggers, 2019; Brynjolfsson et al., 2023)

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Nonusers could derive negative utility from others' social media usage, and negative consumer welfare once this spillover to non-users is accounted for Bursztyn et al. (2023*a*)

- This does not imply that social media use always reduces consumer welfare; some level of use may be beneficial

What are the societal implications of social media consumption?

Channels for aggregate impact

- Providing exposure to persuasive content (e.g., Tabellini, Manacorda and Tesei 2023; Enikolopov, Petrova and Sonin 2018; Guriev, Melnikov and Zhuravskaya 2021; Gans, Goldfarb and Lederman 2021; Ehrmann and Wabitsch 2022)
- Facilitating coordination of actions (e.g., Acemoglu, Hassan and Tahoun 2018; Steinert-Threlkeld et al. 2015; Enikolopov, Makarin and Petrova 2020)
- Shifting individuals' perceptions of others (e.g., Qin, Strömberg and Wu 2021; Enikolopov et al. 2023)

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Political impacts in democracies

- increase news knowledge and facilitate protest in democracies (Fergusson and Molina, 2021; Guess et al., 2023*a*)
- beliefs and behavior negatively influenced by misinformation and hate speech (Allcott and Gentzkow, 2017; Müller and Schwarz, 2023, 2021); effects of policy (Jiménez Durán, Müller and Schwarz, 2025)
- mixed evidence on polarization and voting (Levy, 2021; Garbiras-Díaz and Montenegro, 2022; Guess et al., 2023*a*,*b*; Fujiwara, Müller and Schwarz, Forthcoming)

How do consumer substitute across platforms?

Substitution pattern is relevant to antitrust concerns

Consumers substitute not only to other social media apps, but also to communication apps and non-digital activities (Collis and Eggers, 2022; Aridor, Forthcoming)

Consumption: Open Questions

What is the impact of social media use on adolescent outcomes?

What tools and regulations could increase the welfare effects of social media use?

Do policies aimed at removing hate speech have unintended consequences, such as silencing political dissidents?

What are supply-side implications of unique features of demand - for example - what are the implications of habit formation for competition among social media platforms?

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Economics of social media is an exciting and rapidly evolving area of research

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Empirical evidence comes from observational, quasi-experiments, and experimental data

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For practical guide on designing and running experiments -> see *Experiments on Social Media*

References

Abreu, Luis, and Doh-Shin Jeon. 2020. "Homophily in social media and news polarization."

Acemoglu, Daron, Asuman Ozdaglar, and James Siderius. Forthcoming. "A model of online misinformation." *Review of Economic Studies*.

Acemoglu, Daron, Tarek A Hassan, and Ahmed Tahoun. 2018. "The power of the street: Evidence from Egypt's Arab Spring." *The Review of Financial Studies*, 31(1): 1–42.

Acquisti, Alessandro, Curtis Taylor, and Liad Wagman. 2016. "The economics of privacy." *Journal of Economic Literature*, 54(2): 442–492.

Agan, Amanda Y, Diag Davenport, Jens Ludwig, and Sendhil Mullainathan. 2023. "Automating automaticity: How the context of human choice affects the extent of algorithmic bias."

Aggarwal, Minali, Jennifer Allen, Alexander Coppock, Dan Frankowski, Solomon Messing, Kelly Zhang, James Barnes, Andrew Beasley, Harry Hantman, and Sylvan Zheng. 2023. "A 2 million-person, campaign-wide field experiment shows how digital advertising affects voter turnout." *Nature Human Behaviour*, 1–10.

References (continued)

Allcott, Hunt, and Matthew Gentzkow. 2017. "Social media and fake news in the 2016 election." *Journal of Economic Perspectives*, 31(2): 211–236.

Allcott, Hunt, Luca Braghieri, Sarah Eichmeyer, and Matthew Gentzkow. 2020. "The welfare effects of social media." *American Economic Review*, 110(3): 629–676.

Allcott, Hunt, Matthew Gentzkow, and Lena Song. 2022. "Digital addiction." *American Economic Review*, 112(7): 2424–63.

Allcott, Hunt, Matthew Gentzkow, Ro'ee Levy, Adriana Crespo-Tenorio, Natasha Dumas, Winter Mason, Devra Moehler, Pablo Barbera, Taylor W Brown, Juan Carlos Cisneros, et al. 2025. "The Effects of Political Advertising on Facebook and Instagram before the 2020 US Election." National Bureau of Economic Research.

Aridor, Guy. Forthcoming. "Measuring substitution patterns in the attention economy: An experimental approach." *RAND Journal of Economics*.

References (continued)

Aridor, Guy, Yeon-Koo Che, Brett Hollenbeck, Maximilian Kaiser, and Daniel McCarthy. 2024. "Evaluating the impact of privacy regulation on e-Commerce firms: Evidence from Apple's App Tracking Transparency."

Athey, Susan, Christian Catalini, and Catherine Tucker. 2017. "The digital privacy paradox: Small money, small costs, small talk."

Athey, Susan, Kristen Grabarz, Michael Luca, and Nils Wernerfelt. 2023*a*. "Digital public health interventions at scale: The impact of social media advertising on beliefs and outcomes related to COVID vaccines." *Proceedings of the National Academy of Sciences*, 120(5): e2208110120.

Athey, Susan, Matias Cersosimo, Kristine Koutout, and Zelin Li. 2023*b*. "Emotion- versus reasoning-based drivers of misinformation sharing: A field experiment using text message courses in Kenya."

Bakshy, Eytan, Solomon Messing, and Lada A Adamic. 2015. "Exposure to ideologically diverse news and opinion on Facebook." *Science*, 348(6239): 1130–1132.

References (continued)

Barberá, Pablo. 2015. "How social media reduces mass political polarization. Evidence from Germany, Spain, and the US." *Paper Prepared for the 2015 APSA Conference*, 46: 1–46.

Beknazar-Yuzbashev, George, Rafael Jiménez Durán, Jesse McCrosky, and Mateusz Stalinski. 2022. "Toxic content and user engagement on social media: Evidence from a field experiment."

Braghieri, Luca, Ro'ee Levy, and Alexey Makarin. 2022. "Social media and mental health." *American Economic Review*, 112(11): 3660–3693.

Breza, Emily, Fatima Cody Stanford, Marcella Alsan, Burak Alsan, Abhijit Banerjee, Arun G Chandrasekhar, Sarah Eichmeyer, Traci Glushko, Paul Goldsmith-Pinkham, and Kelly Holland. 2021. "Effects of a large-scale social media advertising campaign on holiday travel and COVID-19 infections: A cluster randomized controlled trial." *Nature Medicine*, 27(9): 1622–1628.

Brynjolfsson, Erik, Avinash Collis, and Felix Eggers. 2019. "Using massive online choice experiments to measure changes in well-being." *Proceedings of the National Academy of Sciences*, 116(15): 7250–7255.

References (continued)

Brynjolfsson, Erik, Avinash Collis, Asad Liaqat, Daley Kutzman, Haritz Garro, Daniel Deisenroth, Nils Wernerfelt, and Jae Joon Lee. 2023. "The digital welfare of nations: New measures of welfare gains and inequality."

Bursztyn, Leonardo, Benjamin R Handel, Rafael Jiménez Durán, and Christopher Roth. 2023*a*. "When product markets become collective traps: The case of social media."

Bursztyn, Leonardo, Georgy Egorov, Ingar Haaland, Aakaash Rao, and Christopher Roth. 2023*b*. "Justifying dissent." *The Quarterly Journal of Economics*, 138(3): 1403–1451.

Campante, Fillipe, Ruben Durante, and Andrea Tesei. 2023. *The Political Economy of Social Media*. CEPR Press.

Chen, Annie Y, Brendan Nyhan, Jason Reifler, Ronald E Robertson, and Christo Wilson. 2023. "Subscriptions and external links help drive resentful users to alternative and extremist YouTube channels." *Science Advances*, 9(35): eadd8080.

References (continued)

Collis, Avinash, and Felix Eggers. 2022. "Effects of restricting social media usage on wellbeing and performance: A randomized control trial among students." *PLOS One*, 17(8): e0272416.

Cookson, J Anthony, William Mullins, and Marina Niessner. 2024. "Social Media and Finance."

Eckles, Dean, René F Kizilcec, and Eytan Bakshy. 2016. "Estimating peer effects in networks with peer encouragement designs." *Proceedings of the National Academy of Sciences*, 113(27): 7316–7322.

Ehrmann, Michael, and Alena Wabitsch. 2022. "Central bank communication with non-experts – A road to nowhere?" *Journal of Monetary Economics*, 127: 69–85.

Enikolopov, Ruben, Alexey Makarin, and Maria Petrova. 2020. "Social media and protest participation: Evidence from Russia." *Econometrica*, 88(4): 1479–1514.

Enikolopov, Ruben, Alexey Makarin, Maria Petrova, and Leonid Polishchuk. 2023. "Social image, networks, and protest participation."

Enikolopov, Ruben, Maria Petrova, and Konstantin Sonin. 2018. "Social media and corruption." *American Economic Journal: Applied Economics*, 10(1): 150–174.

References (continued)

Ershov, Daniel, and Juan S Morales. 2024. "Sharing news left and right: Frictions and misinformation on Twitter." *The Economic Journal*, ueae027.

Fergusson, Leopoldo, and Carlos Molina. 2021. "Facebook causes protests."

Filippas, Apostolos, John J Horton, and Elliot Lipnowski. 2021. "The production and consumption of social media."

Fujiwara, Thomas, Karsten Müller, and Carlo Schwarz. Forthcoming. "The effect of social media on elections: Evidence from the United States." *Journal of the European Economic Association*.

Gans, Joshua S, Avi Goldfarb, and Mara Lederman. 2021. "Exit, tweets, and loyalty." *American Economic Journal: Microeconomics*, 13(2): 68–112.

Garbiras-Díaz, Natalia, and Mateo Montenegro. 2022. "All eyes on them: A field experiment on citizen oversight and electoral integrity." *American Economic Review*, 112(8): 2631–2668.

References (continued)

González-Bailón, Sandra, David Lazer, Pablo Barberá, Meiqing Zhang, Hunt Allcott, Taylor Brown, Adriana Crespo-Tenorio, Deen Freelon, Matthew Gentzkow, Andrew M. Guess, Shanto Iyengar, Young Mie Kim, Neil Malhotra, Devra Moehler, Brendan Nyhan, Jennifer Pan, Carlos Velasco Rivera, Jaime Settle, Emily Thorson, Rebekah Tromble, Arjun Wilkins, Magdalena Wojcieszak, Chad Kiewiet de Jonge, Annie Franco, Winter Mason, Natalie Jomini Stroud, and Joshua A. Tucker. 2023. "Asymmetric ideological segregation in exposure to political news on Facebook." *Science*, 381(6656): 392–398.

Guess, Andrew M, Neil Malhotra, Jennifer Pan, Pablo Barberá, Hunt Allcott, Taylor Brown, Adriana Crespo-Tenorio, Drew Dimmery, Deen Freelon, Matthew Gentzkow, et al. 2023*a*. "Reshares on social media amplify political news but do not detectably affect beliefs or opinions." *Science*, 381(6656): 404–408.

References (continued)

Guess, Andrew M., Neil Malhotra, Jennifer Pan, Pablo Barberá, Hunt Allcott, Taylor Brown, Adriana Crespo-Tenorio, Drew Dimmery, Deen Freelon, Matthew Gentzkow, Sandra González-Bailón, Edward Kennedy, Young Mie Kim, David Lazer, Devra Moehler, Brendan Nyhan, Carlos Velasco Rivera, Jaime Settle, Daniel Robert Thomas, Emily Thorson, Rebekah Tromble, Arjun Wilkins, Magdalena Wojcieszak, Beixian Xiong, Chad Kiewiet de Jonge, Annie Franco, Winter Mason, Natalie Jomini Stroud, and Joshua A. Tucker. 2023*b*. "How do social media feed algorithms affect attitudes and behavior in an election campaign?" *Science*, 381(6656): 398–404.

Guriev, Sergei, Emeric Henry, Theo Marquis, and Ekaterina Zhuravskaya. 2023. "Curtailing false news, amplifying truth."

Guriev, Sergei, Nikita Melnikov, and Ekaterina Zhuravskaya. 2021. "3G Internet and Confidence in Government." *The Quarterly Journal of Economics*, 136(4): 2533–2613.

Henry, Emeric, Ekaterina Zhuravskaya, and Sergei Guriev. 2022. "Checking and sharing alt-facts." *American Economic Journal: Economic Policy*, 14(3): 55–86.

References (continued)

Hoong, Ruru. 2021. "Self control and smartphone use: An experimental study of soft commitment devices." *European Economic Review*, 140: 103924.

Hosseinmardi, Homa, Amir Ghasemian, Aaron Clauset, Markus Mobius, David M Rothschild, and Duncan J Watts. 2021. "Examining the consumption of radical content on YouTube." *Proceedings of the National Academy of Sciences*, 118(32): e2101967118.

Huang, Justin T, and Sridhar Narayanan. 2020. "Effects of attention and recognition on engagement, content creation and sharing: Experimental evidence from an image sharing social network."

Jiménez Durán, Rafael. 2022. "The economics of content moderation: Theory and experimental evidence from hate speech on Twitter."

Jiménez Durán, Rafael, Karsten Müller, and Carlo Schwarz. 2025. "The effect of content moderation on online and offline hate: Evidence from Germany's NetzDG."

Kalra, Aarushi. 2025. "Hate in the Time of Algorithms: Evidence on Online Behavior from a Large-Scale Experiment." *arXiv preprint arXiv:2503.06244*.

References (continued)

Levy, Ro'ee. 2021. "Social media, news consumption, and polarization: Evidence from a field experiment." *American Economic Review*, 111(3): 831–870.

Lorenz-Spreen, Philipp, Lisa Oswald, Stephan Lewandowsky, and Ralph Hertwig. 2023. "A systematic review of worldwide causal and correlational evidence on digital media and democracy." *Nature Human Behaviour*, 7(1): 74–101.

Mosquera, Roberto, Mofioluwasademi Odunowo, Trent McNamara, Xiongfei Guo, and Ragan Petrie. 2020. "The economic effects of Facebook." *Experimental Economics*, 23: 575–602.

Müller, Karsten, and Carlo Schwarz. 2021. "Fanning the flames of hate: Social media and hate crime." *Journal of the European Economic Association*, 19(4): 2131–2167.

Müller, Karsten, and Carlo Schwarz. 2023. "From hashtag to hate crime: Twitter and anti-minority sentiment." *American Economic Journal: Applied Economics*.

Mummalaneni, Simha, Hema Yoganarasimhan, and Varad Pathak. 2023. "How do content producers respond to engagement on social media platforms?"

References (continued)

Nyhan, Brendan, Jaime Settle, Emily Thorson, Magdalena Wojcieszak, Pablo Barberá, Annie Y Chen, Hunt Allcott, Taylor Brown, Adriana Crespo-Tenorio, Drew Dimmery, et al. 2023. "Like-minded sources on Facebook are prevalent but not polarizing." *Nature*, 1–8.

Pennycook, Gordon, and David G Rand. 2022. "Accuracy prompts are a replicable and generalizable approach for reducing the spread of misinformation." *Nature Communications*, 13(1): 2333.

Persily, Nathaniel, and Joshua A Tucker. 2020. *Social media and democracy: The state of the field, prospects for reform.* Cambridge University Press.

Qin, Bei, David Strömberg, and Yanhui Wu. 2021. "Social media and collective action in China."

Roozenbeek, Jon, Sander Van Der Linden, Beth Goldberg, Steve Rathje, and Stephan Lewandowsky. 2022. "Psychological inoculation improves resilience against misinformation on social media." *Science Advances*, 8(34): eabo6254.

Srinivasan, Karthik. 2023. "Paying Attention."

References (continued)

Steinert-Threlkeld, Zachary C., Delia Mocanu, Alessandro Vespignani, and James Fowler. 2015. "Online social networks and offline protest." *EPJ Data Science*, 4(1): 1–9.

Tabellini, Guido, Marco Manacorda, and Andrea Tesei. 2023. "Mobile internet and the rise of communitarian politics."

Tadelis, Steven, Christopher Hooton, Utsav Manjeer, Daniel Deisenroth, Nils Wernerfelt, Nick Dadson, and Lindsay Greenbaum. 2023. "Learning, sophistication, and the returns to advertising: Implications for differences in firm performance."

Wernerfelt, Nils, Anna Tuchman, Bradley Shapiro, and Robert Moakler. 2022. "Estimating the value of offsite data to advertisers on Meta." *University of Chicago, Becker Friedman Institute for Economics Working Paper*.

Zhuravskaya, Ekaterina, Maria Petrova, and Ruben Enikolopov. 2020. "Political effects of the internet and social media." *Annual Review of Economics*, 12: 415–438.