Gersbach, Hans

Working Paper

Democratizing tech giants! A roadmap

Economics Working Paper Series, No. 19/325

Provided in Cooperation with:
ETH Zurich, CER-ETH – Center of Economic Research

Suggested Citation: Gersbach, Hans (2019) : Democratizing tech giants! A roadmap, Economics Working Paper Series, No. 19/325, ETH Zurich, CER-ETH - Center of Economic Research, Zurich, https://doi.org/10.3929/ethz-b-000373736

This Version is available at:
https://hdl.handle.net/10419/207147

CER-ETH – Center of Economic Research at ETH Zurich

Democratizing Tech Giants! A Roadmap

H. Gersbach

Working Paper 19/325
October 2019

Economics Working Paper Series

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Democratizing Tech Giants!
A Roadmap[1]

Hans Gersbach

CER-ETH – Center of Economic Research
at ETH Zurich and CEPR
Zürichbergstrasse 18
8092 Zurich, Switzerland
hgersbach@ethz.ch

This Version: October 2019

Abstract

How society should deal with the self-strengthening Tech Giants is a much-discussed issue. We suggest to democratize them by giving users a say in their decisions. With newly-developed collective decision rules and user councils, democratization of Tech Giants becomes feasible.

[1] We would like to thank Moritz Hoferer and David Basin for helpful comments. This paper is an extended version of Gersbach, H. (2019), "A Bit of Democracy for the Tech Giants: Two Ideas", which appeared in October 2019 as a blog on www.voxeu.org.

1. Self-strengthening Monopolies

For better or worse, we daily contribute to risky monopolies: We use products of the worlds largest technology companies – Apple, Google, Microsoft, Facebook and Amazon.[2] The more of us are using them, the more useful they become to us. Several further aspects make this type of monopoly self-strengthening (see e.g. Müller and Wambach (2018) and Crémer et al. (2019)).

First, if an internet service like Google attracts more users, its search results become more relevant and its algorithms more refined, which makes it more attractive for individual users and thus for advertising companies – so that Google reaps more benefits.

Second, many of the services offered by so-called „Tech Giants" are free of charge for the individual customers, thus heightening incentives to join and use these services. The growing number of users allows to demand higher prices for advertising on theses services. Of course, the users pay for the services without noticing it, by paying attention to advertisement and by contributing to valuable databases.

Third, for those services and products we *do* have to pay, the positive network effects entail better products. As so many people use Microsoft products, for example, these products are more likely to be improved constantly, and the programming of any new (external) application will ensure its being compatible with Microsoft products. This, in turn, will attract more consumers and reinforce Microsoft s monopoly.

Fourth, although Tech Giants also face competition for services and products, their monopoly manifests itself in various forms. Amazon offers a wide range of products. This makes it attractive to buyers and sellers, but also relegates competitors to „niche products", on a smaller scale. Apple has built up such an impressive reputation for innovative, attractive „must-have" design and the flair of innovation in functionalities that customers are practically addicted to its products.

Fifth, thanks to their economic power, Tech Giants can buy competitors and innovative startups, or discourage them, and while a few years ago, we were using Tech Giants by choice, we are now trapped into using them for want of equivalent alternatives.

2. Risks for Democracy

Thus, Tech Giants can become an economic threat – a monopoly generally entailing higher costs and limited choice for users/buyers in the long run. What is more, the Tech Giants control important

[2] We note that ownership structures are more complicated. Alphabet owns Google, for instance. Moreover, the set of Tech Giants must not be limited to these five companies, as social media like Twitter might be included as well.

information processes and platforms for spreading information, which are the basis for collective decision-making. Information spreading, information storing, access to information, information comparison, information weighting and information disregard, all are monitored by the Tech Giants.

Are these activities a risk or even a threat to democracy? To answer this question, let us start from some core principles on which well-founded democracies rely and which might be affected by Tech Giants. Parties or their candidates compete for the legislative and executive branches in free and anonymous elections. Voters have access to all relevant information to judge the performance and behavior of members of parliament and of the executive body. Free speech and freedom of the press ensure that this is indeed materialized at the best-possible level. Separation of powers and checks and balances ensure that no branch of government can enlarge its power beyond the boundaries specified in the constitution. Governmental power is limited and, in particular, the individuals private sphere is protected from governmental intervention as long as the citizens do not violate the rules severely.

There are several areas in which Tech Giants might limit the functioning of these principles. First and most obviously, if a Tech Giant operates a platform on which a large amount of social interaction and communication takes place, it may limit free speech and communication among citizens.

Facebook is a good example for this duplicity and the challenges it entails. In a first phase, it advertised itself as promoting democracy: all opinions were to be considered equal and were given the same chance of being acknowledged, discussed, and promoted. Such was the argument against the monitoring of contents. When it became evident that this equality promoted anti-democratic forces and benefitted destructive, anti-social groups, the necessity for some kind of control and intervention led to a type of monitoring that came dangerously close to censoring. The middle course is still to be defined. It has to be free speech, with some dangerous areas and defamatory entries censored, for instance.

Second, the deep knowledge of Tech Giants about users – involving their behavior, opinions and revealed preferences, and sometimes entire personal profiles – is amassing a power on the private sphere that is unprecedented and can be significantly higher than the power held by the state. While this information has been given voluntarily, it may later become a constraint, and hurt individuals as citizens in democracy. This is most obvious when such data are given away to third parties or even to political parties and interest groups which then might use these personal data to try and influence citizens.[3] Even more serious events would occur if personal data get into the wrong hands and are used to blackmail citizens to behave or vote in a particular way.

[3] Hoferer et al. (2020) make an assessment of the value of microtargeting in campaigns.

Third, even if Tech Giants remain passive and no personal data leave them, citizens are confronted with difficult and unwelcome situations. Having such an amount of personal data about citizens in the hand of a monopoly may lead to temptations to use them to influence voters towards preferences the owners of the Tech Giants have. This can be achieved in subtle ways through the recommendation system and information transmissions. If persons watching videos on the current status of security in the streets from time to time constantly receive recommendations for videos about proposals from extreme law and order parties, it may influence them. One day, a Tech Giants may simply start a campaign on an issue and assume power to influence public opinion that is unprecedented. If everybody is aware of this possibility, it may impact politics even without any action from the Tech Giants.

Even if Tech Giants remain passive and have no intention to manipulate the users, the algorithms for search and recommendations, for instance, may have intrinsic biases that are not easy to detect from the outside and which may persist for a long time.

Fourth, Tech Giants play a role in the infrastructure for elections. Most obviously, if electronic voting takes place, it can rely on operating systems of the Tech Giants. Moreover, political campaigns use the platforms of Tech Giants. These functions increase the Tech Giants power.

Several of the risks discussed above can be avoided and one can count on enlightened and critical citizens as well as on a free press and a state who is obliged to ensure free and fair elections to mitigate these risks. However, they are too large and threatening, such that the joint economic and potential political power of the Tech Giants has to be limited.

Of course, Tech Giants offer a wide range of services and products, and compete with each other on some of them. Moreover, not all services are problematic for democracy. Cloud computing services, for instance, are of a lesser concern for competition and democracy than social media.

3. What to Do?

Many solutions are currently discussed and there seems to be no easy way to deal with the Tech Giants, even if standard tools of competition have been applied successfully to limit economic power (see Caffarra et al. (2018)).[4] Breaking up Tech Giants offering many services might help, but may merely entail new Tech Giants. And even if regulations had supranational force – and were effective as globally as the Tech Giants –, it would still have to keep pace with the Tech Giants speed of

[4] See in Crémer et al. (2019) how competition policy could be reshaped in the digital era.

innovation. In particular, time-consuming deliberation and decision processes render democracies far less able to monitor the Tech Giants monopolies than non-democratic countries like China.

The best way to monitor the Tech Giants is via the *"currency in which customers buy services"* – the personal data (Economist (2018)). Such control could operate in two directions: One could develop specific supranational laws governing the ownership and exchange of data and monitor the Tech Giants through these laws. Yet, such a legal system might be costly and too slow – again.

But the monitoring could also happen *the other way round, by democratization instead of coercion*. Our idea is to find solutions in which the Tech Giants and users play an active part. We develop new collective decision procedures that can be used for experimenting, and our monitoring problem with the Tech Giants would be an ideal field of experimentation (Gersbach et al. (2019) and Gersbach (2016)).

We suggest to let the *users* have a say in matters that are crucial for them. This might not be equivalent to an ideal supranational regulator, but would still balance the shareholders power to some extent.

The first challenge is to know on which decisions the users should be consulted—it might be reasonable to start with important decisions of the shareholders that affect the users right to their shared information. Moreover, users should have a say in general specifications for search and learning algorithms, for instance, and on user access and censoring rules.

How should the users be given a voice? We present two basic ways how this could be organized.

4. Solution – Voting

A first area in which to look for solutions are voting procedures. While a voting among all users is conceivable, more efficient voting procedures in the spirit of Co-voting might be more suitable (Gersbach (2016)). With Co-voting, a randomly-selected representative subgroup of all users would be selected – a so-called „Assessment Group." The Assessment Group would vote first and the result would be made public. The decision would be aggregated with the subsequent decision of the shareholders or their delegates in the Board of Directors to yield the final decision. The two voter-groups decisions could be weighted according to a pre-defined key. This way to let the users be represented and be allowed to have a say in any important decision would certainly change these users attitude towards the Tech Giants – they might even be able to better accept and support a difficult or costly decision. In turn, such involvement of users might help to protect the data ownership rights and ensure that algorithms are respecting free speech, as well as other desirable properties of information provision and dissemination.

Several variants of the voting procedures are conceivable. For instance, the voting process does not take place sequentially, but simultaneously, and the two decisions of the shareholders and the users – suitably weighted – yield the final decision. Furthermore, for issues of highest importance, one could imagine that the entire pool of users should have a say. For such cases, one could use Assessment Voting (see Gersbach et al. (2019)). Under such voting procedures, once the Assessment Group has made a decision and the decision has been made public, the entire pool of users would have a chance to vote, either confirming the Assessment Groups decision by abstaining, reinforcing the result, or overturning the Assessment Groups outcome. Again, subsequently, the voting outcomes of the users and the shareholders, suitably weighted, would be aggregated to yield the final decision.

Of course, any voting procedure requires an assignment of voting rights to users. The simplest way would be to grant one vote per user. Yet, a more refined voting right assignment would be to relate a users intensity of usage to the voting power granted for important decisions, including, but not limited to, the right to put initiatives to vote, specific veto rights to counteract coordination of shareholders on speaking with one voice, or counterproposal rights for users.

5. Solution – User Council

An alternative way to let users have a say in the Tech Giants decisions is to select a representative user group, a user council, who acts as representative body for the pool of users.[5] Various possibilities exist how co-determination can be structured with user councils. Any of these forms requires the assignment of different types of rights – consultation, veto and co-decision rights – to the user council on all matters that are relevant for users. With such rights, the user council starts systematic communication with the Board of Directors and can negotiate on all matters for which it has veto or co-decisions rights. Typically, for decisions regarding the users right to their own information, access rules for users and censoring rules, co-decision rights should be strong and comprise veto rights on particularly sensitive matters. Furthermore, some members of the user council could be elected to the Board of Directors to directly participate in the decisions and to ensure systematic communication between the owners and the user council.

We next discuss who should represent the users in these councils and how these representatives should be chosen. The most straightforward way to select representatives via election by other users, no

[5] Some forms of this type of co-determination might resemble the German system of "Betriebsrat" (works council). Works council members are elected by the company workforce for a given term. They may also be appointed to the board of directors. This allows to reduce workplace conflicts by improving and systematizing communication channels and to increase the bargaining power of workers towards owners by means of legislation. See e.g. Freeman and Lazear (1996) for an early analysis and Hübler (2015) for an account of the pros and cons of work councils.

matter whether the selected persons are Super-Users, Expert Users or average users. These would be the so-called "Representatives". Such an election could be conducted like normal works council elections, with candidates presenting themselves for an office term. However, since the global user pool is so large, a randomly selected user sample group would select user representatives from a list of candidates.

The other issue is who should have the right to stand for election. Of course, a precondition is active participation and if services are costly, revenue-generating users. Ideally, one would like to have "Super-Users", "Expert Users" and "Regular Users" in the user council. The first are the users who have the highest usage frequency, the second the ones who have highest technology expertise, and the last are regular ("average") users. Ideally, the candidate pool is composed of these three subgroups of users, and one might even elect representatives of each subgroup separately.[6] Such a user representatives group would be a perfect task force: With the leverage power of the Super-Users, the extended knowledge of the Expert Users and the legitimacy of the Regular Users, it would certainly have sufficient weight to mitigate the Tech Giants monopoly.

6. Implementation

Of course, this is merely a first attempt to assess how to democratize Tech Giants. Several crucial issues await more detailed investigation. We start by providing a roadmap for some of the most pressing issues.

First, if one immediately reflects on the real-like applications of voting procedures, it has to be specified who is allowed to make proposals that are put to the vote, i.e. who would decide when Co-voting should be triggered at all. While this could be captured in an amendment of the constitution of the Tech Giants, a user charter, it appears to be useful to grant the right to call a referendum to the users.

Second, with both voting and electing a user council, users may face the problem that shareholders coordinate on speaking with one voice, which makes it difficult to overturn such a decision. With user councils, this problem is alleviated by user representatives in the Board of Directors and by veto rights for the most sensitive matters. With voting, it may be important that users can decide first and the result be made public. Then, it will be much more difficult to take an opposing stance for shareholders if the users decision is clear-cut.

[6] In principle, Super-Users and Expert Users could be selected by the algorithms and measuring tools of the Tech Giants themselves. Yet, such measuring tools are susceptible to manipulation.

Third, for both voting and electing a user council, the Tech Giants have appropriate technological toolkits and thus, they may find it particularly easy to manage this type of process. One can expect them to invent and develop ways to organize such democratic processes efficiently, in a fair and transparent way. However, since they own the technologies, they may also be tempted to steer the voting processes in the direction that suits them best. Since there are many manipulation possibilities, it is necessary that users can monitor these processes or – even better – that voting and elections are executed by trusted third parties.

Fourth, if voting and elections for the user councils are based on a randomly-selected Assessment Group, the representability of this Assessment Group is central – in the technical sense of randomization and in the perception of the users. Only if a vast majority perceives the Assessment Group as representative, will the decision by this group be legitimate. This is already a delicate issue in a single jurisdiction, so it should be a substantial challenge for a global user pool.

Fifth, of course, users themselves can differ vastly regarding how Tech Giants should be steered. Hence, all significant user perspectives should be represented in the user council if this solution is envisioned. On the most sensitive matters such as censoring rules, appropriate minority protection may be necessary.

Sixth, democratizing Tech Giants may evolve and the Tech Giants may become an organization with further bodies such as an arbitral tribunal for conflict resolution. Hence, Tech Giants may evolve towards a virtual jurisdiction and assume more and more power to structure the users life. Of course, such developments should be bridled by national jurisdictions and by the law of nations.

Seventh, since Tech Giants offer very different services, there is competition for some of these services, while others are less of a concern for democracy, so that democratizing is not equally pressing for each of the Tech Giants and for each type of services. Clearly, Google and Facebook would be the natural starting points for a democratization endeavor. Other Tech Giants or other large social media like Twitter could follow.

7. Conclusion

New democratic procedures alone will not eliminate the monopoly of the Tech Giants, but they might re-balance the market by giving users some degree of decision power *within* this monopoly. If their monopoly is not endangered, the Tech Giants might be willing to share some of their power with users by including them into key decisions. This might be more efficient than bridling Tech Giants with regulations that cannot keep track with technological advances.

Lessening the Tech Giants power to shape communication and data handling by including new democratic processes in their decision-making might even help to improve deliberation in democracy, since the separation of users in media ecosystems[7] may be transcended (or lessened) – what a great field for experimentation and what a promising outlook for democracy!

8. Literature

Benkler Yochai, Farris, Robert, and Roberts, Hal (2018), *Network Propaganda: Manipulation, Disinformation, and Radicalization in American Politics*, New York, NY, Oxford University Press.

Caffarra, Cristina, Latham, Oliver, Bennett, Matthew, Etro, Federica, Régibeau, Pierre, and Stillman, Robert (2018), Google Android: European "Techlash" or Milestone in Antitrust Enforcement?, www.voxeu.org (published 27 July 2018, retrieved September 30, 2019).

Crémer, Jacques, de Montjoye, Yves-Alexandre, and Schweitzer, Heike (2019), *Competition Policy for the Digital Era: Report*, Luxembourg, Publications Office of the European Union.

Economist, January 18, 2018, How to Tame the Tech Titans.

Freeman, Richard B. and Lazear, Edward P. (1996) An Economic Analysis of Works Councils, in: Rogers, J. and Streeck, W. (Eds.), *Works Councils – Consultation, Representation, and Cooperation in Industrial Relations*, Chicago, IL/London, University of Chicago Press, 27-49.

Gersbach, Hans, Mamageishvili, Akaki, and Tejada, Oriol (2019), The Effect of Handicaps on Turnout for Large Electorates: An Application to Assessment Voting, CEPR Discussion Paper DP13921.

Gersbach, Hans (2016), Co-voting Democracy, *Economics of Governance* 18(4), 2017, 337-349.

Gersbach, Hans (2019), A Bit of Democracy for the Tech Giants: Two Ideas, www.voxeu (retrieved October 2019).

Hoferer, Moritz, Böttcher Lucas, Herrmann, Hans J., and Gersbach, Hans (2020), The Impact of Technologies in Political Campaigns, *Physica A* 538, 122795.

Hübler, Olaf (2015), Do Works Councils Raise or Lower Firm Productivity? IZA World of Labor 137. www.wol.iza.org (retrieved October 14, 2019).

Müller, Christian and Wambach, Achim (2018), *Digitaler Wohlstand für alle*, Frankfurt am Main, Campus.

[7] See Benkler et a. (2018).

Working Papers of the Center of Economic Research at ETH Zurich

(PDF-files of the Working Papers can be downloaded at www.cer.ethz.ch/research/working-papers.html).

19/325 H. Gersbach
Democratizing Tech Giants! A Roadmap

19/324 A. Brausmann, M. Flubacher and F. Lechthaler
Valuing meteorological services in resource-constrained settings: Application to smallholder farmers in the Peruvian Altiplano

19/323 C. Devaux and J. Nicolai
Designing an EU Ship Recycling Licence: A Roadmap

19/322 H. Gersbach
Flexible Majority Rules for Cryptocurrency Issuance

19/321 K. Gillingham, S. Houde and A. van Benthem
Consumer Myopia in Vehicle Purchases: Evidence from a Natural Experiment

19/320 L. Bretschger
Malthus in the Light of Climate Change

19/319 J. Ing and J. Nicolai
Dirty versus Clean Firms' Relocation under International Trade and Imperfect Competition

19/318 J. Ing and J. Nicolai
North-South diffusion of climate-mitigation technologies: The crowding-out effect on relocation

19/317 J. Abrell, M. Kosch and S. Rausch
How Effective Was the UK Carbon Tax? - A Machine Learning Approach to Policy Evaluation

19/316 D. Cerruti, C. Daminato and M. Filippini
The Impact of Policy Awareness: Evidence from Vehicle Choices Response to Fiscal Incentives

19/315 M. Filippini, N. Kumar and S. Srinivasan
Energy-related financial literacy and bounded rationality in appliance replacement attitudes: Evidence from Nepal

19/314 S. Houde and E. Myers
Heterogeneous (Mis-) Perceptions of Energy Costs: Implications for Measurement and Policy Design

19/313 S. Houde and E. Myers
Are Consumers Attentive to Local Energy Costs? Evidence from the Appliance Market

19/312 N. Kumar
A model-based clustering approach for analyzing energy-related financial literacy and its determinants

19/311 C. Karydas and A. Xepapadeas
Pricing climate change risks: CAPM with rare disasters and stochastic probabilities

19/310 J.Abrell,S. Rausch and C. Streitberger
Buffering Volatility: Storage Investments and Technology-Specific Renewable Energy Support

19/309 V. Britz
Negotiating with frictions

19/308 H. Gersbach and S. Papageorgiou
On Banking Regulation and Lobbying

18/307 V. Britz, A. Ebrahimi and H. Gersbach
Incentive Pay for Policy-makers?

18/306 C. Colesanti Senni and N. Reidt
Transport policies in a two-sided market

18/305 A. Schäfer and A. Stünzi
The impact of green preferences on the relevance of history versus expectations

18/304 M. Filippini and S. Srinivasan
Impact of religious participation, social interactions and globalisation on meat consumption: evidence from India

18/303 H. Gersbach and M.-C. Riekhof
Permit Markets, Carbon Prices and the Creation of Innovation Clusters

18/302 M. Hersche and E. Moor
Identification of Causal Intensive Margin Effects by Difference-in-Difference Methods

18/301 L. Kleemann and M.-C. Riekhof
Changing background risk and risk-taking - Evidence from the field

18/300 J. Blasch and C. Daminato
Behavioral anomalies and energy-related individual choices: the role of status-quo bias

18/299 S. Rausch and H. Schwerin
Does Higher Energy Efficiency Lower Economy-Wide Energy Use?

18/298 H. Gersbach, U. Schetter and M. Schneider
Economic Rationales for Investments in Science

18/297 K. Borissov and L. Bretschger
Optimal Carbon Policies in a Dynamic Heterogenous World

18/296 L. Bretschger and C. Karydas
Economics of Climate Change: Introducing the Basic Climate Economic (BCE) Model

18/295 A. Pattakou and A. Vlahakis
Effectiveness of renewable energy subsidies in a CO2 intensive electricity system

18/294 H. Gersbach, V. Hahn and Y. Liu
Macroprudential Policy in the New Keynesian World

18/293 H. Schwerin
Swap Bonds or Stocks, or Balance Trade! A Game of Implicit Environmental Policy

18/292 S. Houde
Bunching with the Stars: How Firms Respond to Environmental Certification

18/291 L. Bretschger and A. Vinogradova
Escaping Damocles' Sword: Endogenous Climate Shocks in a Growing Economy

18/290 S. Houde
The Incidence of Coarse Certification: Evidence from the ENERGY STAR Program

18/289 J. Blasch, N. Boogen, C. Daminato and M. Filippini
Empower the consumer! Energy-related financial literacy and its socioeconomic determinants

18/288 L. Bretschger and S. Soretz
Stranded Assets: How Policy Uncertainty affects Capital, Growth, and the Environment

18/287 S. Rausch and H. Yonezawa
The Intergenerational Incidence of Green Tax Reform

18/286 J. Abrell, S. Rausch, and C. Streitberger
The Economics of Renewable Energy Support

18/285 K. Borissov, L. Bretschger and A. Vinogradova
Carbon Pricing, Technology Transition, and Skill-Based Development