Can Media Pluralism Be Harmful to News Quality?

Federico Innocenti
University of Mannheim, Department of Economics

Contact Information:
Department of Economics
University of Mannheim
L7, 3-5 - 68161 Mannheim - Germany

Email: finnocen@mail.uni-mannheim.de

Abstract

I study the effect of polarization and competition on information provision. With a single expert who faces decision-makers with heterogeneous priors, the expert solves a trade-off between persuading sceptics and retaining believers. With high polarization, an expert has incentives to supply low-quality information to leverage believers' credulity. With multiple experts with opposite biases, competition is harmful if attention is limited. Unbiased and Bayesian decision-makers rationally devote attention to like-minded experts. Echo chambers arise endogenously, whereas decision-makers would be better informed in monopoly. My model can rationalize the spread and persistence of conspiracy theories and fake news.

Motivation

Solve a puzzle of the digital age:

- On the one hand, the Internet has been considered a very effective way to guarantee political pluralism in the information, and to counteract media ownership concentration (Keen, 2015). The more information a decision-maker receives, the more she knows about an issue, and the less she is influenced by the bias of a particular expert.

- On the other hand, several empirical facts point to a deterioration of the quality of the information available. Examples that come to mind are the spread of conspiracy theories and fake news. Public opinion is significantly affected by misperceptions in the digital age (Allcott and Gentzkow, 2017; Allcott et al., 2020).

Research Question

Does competition in information provision improve individual decision-making?

Short answer: No, when decision-makers with heterogeneous priors and limited attention face biased experts.

Monopoly

The expert designs information to maximize the probability that decision-makers take the expert's favourite action. The expert faces two decision-makers: a sceptic and a believer. Ex-ante the believer would choose the expert's favourite action, whereas the sceptic would not. Any attempt to change the sceptic's beliefs affects the believer's beliefs as well. Hence, the expert solves a trade-off between persuading the sceptic and retaining the believer. The expert can use two strategies: the *hard-news strategy* and the *soft-news strategy*.

Hard-news Strategy

This strategy focuses on persuading the sceptic. To persuade the sceptic a message must be credible, that is it can be misleading only to a limited extent. Therefore, the expert bears the cost of revealing the unfavourable state with positive probability to both decision-makers. Ex-post the believer could take the expert's adverse action.

Example: hard evidence, such as scientific data.

Soft-news Strategy

This alternative strategy focuses on retaining the believer. The expert mixes between a message that persuades the sceptic and a message that just retains the believer. With the latter, the expert leverages the believer's credulity. This strategy ensures that the believer chooses the expert's favourite action with probability one.

E.g. mix of hard evidence and soft evidence, such as anecdotal facts.

Optimal Persuasion

The expert prefers the soft-news strategy when:

- **The decision-makers are sufficiently polarized** - Higher polarization makes it either more costly to persuade the sceptic or easier to leverage the believer's credulity.

- **The believer is sufficiently important**.

- **The expert's confidence in his favourite action being preferred also by decision-makers is low** - The expert values more his ability to be misleading.

The hard-news strategy **is more informative** than the soft-news strategy according to the ordering defined by Blackwell (1953).

Competition

Standard prediction: Full revelation is the equilibrium when decision-makers have unlimited attention (Gentzkow and Kamenica, 2017a,b).

Novel prediction: Echo Chambers is the unique symmetric pure strategy equilibrium when decision-makers have limited attention.

Model

Two experts compete to persuade decision-makers. However, the latter can devote attention to just one expert. Persuasion and the endogenous allocation of attention take place simultaneously:

- Given the allocation of attention, each expert persuades as a monopolist in his market. The allocation of attention affects the distribution of priors each expert has to deal with.

- Given the experts' strategies, each decision-maker allocates her attention to maximize her subjective information gain from persuasion.

Targeted decision-maker: the expert's strategy is tailored to persuade that particular decision-maker. E.g., the sceptic is targeted if the expert uses the hard-news strategy.

Any decision-maker who is targeted by a given expert gets zero information gain when devoting attention to this particular expert. This result shapes the incentives of the decision-makers regarding the allocation of attention.

Equilibrium

Echo chambers (i.e., audience = believers) is an equilibrium:
Because each expert is facing only his believer, babbling is the optimal strategy for each expert. Given babbling by both experts, the decision-makers have no incentive to deviate (zero information gain in any case).

Opposite-bias learning (i.e., audience = sceptics) is not an equilibrium:
Both experts are using the hard-news strategy. Hence, each decision-maker has incentives to become the believer of the other expert, to get a positive information gain.

Decision-makers are better informed in a monopoly:
A monopolist has to solve a trade-off between persuading the sceptic and retaining the believer. Thus, the expert uses either the hard-news strategy or the soft-news strategy, which are both more informative than babbling following Blackwell (1953).

Main take-away: Ubiquitous information could make all information useless.

Extensions

- The endogenous allocation of attention makes competition harmful.
  - A "neutral" platform can make competition beneficial;
  - The platform can allocate the attention in a way that induces both experts to use the hard-news strategy.

- Mixed strategy equilibria:
  - Intermediate between a monopoly and Echo Chambers, in terms of informativeness.
  - Rationalize the coexistence of informative and babbling experts.

- Arbitrary many decision makers endowed with different priors:
  - Optimal persuasion strategy is still either a hard-news strategy or a soft-news strategy.
  - With competition and limited attention, any equilibrium is such that at least one expert is babbling.

Applications

The insights from my model apply to a broad range of applications:

- Limited attention is a well-established fact in many contexts.

- Heterogeneous priors are also very likely to exist when the objective probability for a claim to be true is ambiguous.

- Whenever the true state of the world is disputed, there are likely competing interpretations of the current state of events.

Examples:

- (COVID-19) Vaccinations.
- The advertising of differentiated products.
- Climate change.
- Trump's "rigged" election.
- Attitude towards social distancing.
- Fans discussing the referee's decisions.

Conclusions

- Information disintermediation is not necessarily beneficial.
  - Even unbiased decision-makers end up devoting attention to like-minded experts.
  - Novel rationalization for confirmation bias.

- Policy recommendation: support competition only if the attention budget is not binding.
  - When attention is limited, increasing the diversity of news sources leads decision-makers to cluster into echo chambers.
  - Herd immunity is unachievable if the anti-vax Echo Chamber is too large.

- Open question: How can we mitigate confirmation bias?
  - A platform can maximize the informativeness of news...
  - ...but there is no guarantee that it would.

References

ALLCOTT, H., L. BOXELL, J. CONWAY, M. GENTZKOW, M. THALER, AND D. YANG (2020): "Polarization and public health: Partisan differences in social distancing during the coronavirus pandemic," *Journal of Public Economics*, 191, 104254.

ALLCOTT, H. AND M. GENTZKOW (2017): "Social media and fake news in the 2016 election," *Journal of economic perspectives*, 31, 211–36.

BLACKWELL, D. (1953): "Equivalent comparisons of experiments," *The annals of mathematical statistics*, 265–272.

GENTZKOW, M. AND E. KAMENICA (2017a): "Bayesian persuasion with multiple senders and rich signal spaces," *Games and Economic Behavior*, 104.

——— (2017b): "Competition in Persuasion," *The Review of Economic Studies*, 84.

KEEN, A. (2015): *The Internet Is Not the Answer*, Grove Press.

Acknowledgements

I am grateful to Martin Peitz and Thomas Tröger for their encouragement and support. I thank Michele Bisceglia, Carl-Christian Groh, Melika Liporace, Niccolò Lomys, Volker Nocke, Nicolas Schutz and Konrad Stahl for their helpful comments. I gratefully acknowledge funding by the German Research Foundation (DFG) through CRC TR 224 (Project B05).