AN EXPERIMENTAL STUDY ON PERSUASION BIAS

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Abstract

This study aims to experimentally explore whether individuals are subject to persuasion bias, a form of information-processing bias that causes people in a communication network to fail to adjust properly for possible repetitions of received information. Correctly adjusting for repetition would require individuals to recount not only the source of all the information that has played a role in forming their beliefs, but also the source of the information that led to the beliefs of those to whom they listen, of those who are listened to by those to whom they listen, and so on. Under persuasion bias, individuals fail to update information without accurately accounting for which information they receive is new and which is repetition. Persuasion bias can be viewed as a simple boundedly rational heuristic that provides a simple and sound explanation for several important phenomena, such as the influence of propaganda, censorship, marketing, and the importance of airtime.

We consider a setting where four agents wish to estimate an unknown parameter \( \theta \). Agents start with some initial private information on \( \theta \), which consists of normally distributed unbiased estimates of \( \theta \). Given their initial noisy signals, agents communicate for a fixed number of rounds according to an exogenously given social network, with the common goal of approximating \( \theta \).

An immediate implication of persuasion bias is the phenomenon of social influence, whereby one’s influence on group opinions depends not only on accuracy but also how well-connected one is in the social network according to which communication takes place. Hence, in order to detect whether individuals suffer from persuasion bias, we compare the social influence of each individual on the group decision in two separate listening structures. In the balanced structure where every agent in the network has equal number of channels to access and to reveal information, every agent is expected to have equal weight on the group decision concerning \( \theta \). The unbalanced structure, on the other hand, is designed so that there is at least one agent who is more influential than the others, i.e. the group decision on \( \theta \) is expected to be biased towards this agent’s initial private information if the agents update information under persuasion bias.

Our experimental results support the existence of persuasion bias. They also provide interesting observations concerning the dynamics of beliefs under this bias.

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