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Author Name: D. Cale Reeves
Author Company: LBJ School of Public Affairs, The University of Texas at Austin
Second Author's Name: Varun Rai, LBJ School of Public Affairs, The University of Texas at Austin

Abstract Title: Effective Information Seeding Strategies to Accelerate Solar Adoption

Abstract Text:

In the adoption of novel, environmentally-friendly but capital-intensive technologies such as solar photovoltaic (PV), nominal economics (i.e. sticker price) is only one factor in the decision-making of individuals. Other non-monetary social and behavioral drivers including anchoring, loss aversion, peer effects, and path-dependent perceptions complicate the adoption decision. When facing such complex decisions, individuals turn to trusted information sources. Similarly, early adopters play a key role in spreading information through their social networks, initiating chains of adoption events. To understand the adoption process it is important to jointly study economic, social, and behavioral drivers, with particular attention to the flow of information in the underlying social networks.   Our objective in this paper is to identify effective information dissemination strategies designed to leverage social networks for accelerating the adoption of environmentally-friendly technologies. Recently we have developed an agent-based modeling (ABM) framework for residential PV adoption to predict adoptions over geo-space and time with a high degree of accuracy, in part by simulating the propagation of attitudes towards solar through social networks underlying the population of interest. Participants (nodes) in these social networks have differing levels of influence on one another. So-called "opinion leaders" and "hubs" are social mavens; they have a greater impact on connected nodes by virtue of exerting a stronger influence or having ties to more nodes. We use ABM to explore various "information seeding" strategies by examining the social network structure in search of social mavens and then simulating the effect of information campaigns targeted to them.