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Estimating Peer Effects with Peer Encouragement Designs and Massive Meta-Analysis

Peer effects, in which the behavior of an individual is affected by the behavior of their peers, are central to social science. Because peer effects are often confounded with homophily and common external causes, recent work has used randomized experiments to estimate effects of specific peer behaviors. These experiments have often relied on the experimenter being able to randomly modulate mechanisms by which peer behavior is transmitted to a focal individual. We describe experimental designs that instead randomly assign individuals' peers to encouragements to behaviors that directly affect those individuals. We illustrate this method with a large peer encouragement design on Facebook for estimating the effects of receiving feedback from peers on posts shared by focal individuals. We find evidence for substantial effects of receiving marginal feedback on multiple behaviors, including giving feedback to others and continued posting.

I also describe some ongoing work to use large collections of randomized experiments to learn causal relationships, with applications to peer effects. We focus on cases where the number experiments is large, many experiments have very small effects, and the analyst lacks metadata (e.g., descriptions of the interventions). We use L0 regularization, clustering and coarsening, and a modification of cross-validation.

Joint work with René Kizilcec (Stanford), Eytan Bakshy (Facebook), and Alex Peysakhovich (Facebook)