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MULTI-OBJECTIVE PERSONALIZATION OF MARKETING INTERVENTIONS

ABSTRACT:

Marketing interventions usually affect multiple outcomes of interest. However, finding an intervention that improves all desired outcomes is often rare, creating a trade-off for policymakers. In this paper, we develop a multi-objective personalization framework that develops personalized policies to balance multiple objectives at the individual level. We apply our framework to a canonical example of multi-objective conflict in measuring the effects of interventions on sponsored vs. organic content consumption. Partnering with vdo.ai, we conduct a field experiment and randomly assign users to the Skippable/Long and Non-Skippable/Short versions of the same ad. We document substantial substitution between sponsored and organic content consumption: the version that increases sponsored consumption reduces organic consumption. We find that multi-objective personalized policies can significantly improve both sponsored and organic consumption outcomes over single-objective policies. We show that compared to a single-objective policy optimized for organic consumption, there exists a multi-objective policy on the Pareto frontier that increases sponsored consumption by 61% at the expense of only a 4% decrease in organic consumption. Similarly, compared to the single-objective policy optimized for sponsored consumption, there is a multi-objective policy that increases organic consumption by 47% while decreasing ad consumption by just 13%.