A Comparison of Approaches to Advertising Measurement: Evidence from Big Field Experiments at Facebook

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We compare how common techniques used to measure the causal impact of ad exposures on users' conversion outcomes compare to the "gold standard" of a true randomized experiment (randomized controlled trial). Using data from 12 advertising lift studies at Facebook comprising 435 million user-study observations and 1.4 billion total impressions we contrast the experimental results to those obtained from observational methods, namely comparing exposed to unexposed users, model-based matching methods (propensity scores, regression adjustment), synthetic matched-markets tests, and before-after tests. We show whether and why these other methods might fall short. Our findings suggest that several approaches used to measure advertising effectiveness in industry fail to accurately measure the true effect of ads.