Toward an Ethical Experiment[*]

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Abstract

Randomized Controlled Trials (RCT) enroll hundreds of millions of subjects and involve many human lives. To respect subjects' welfare, I propose an alternative design of RCT which I call *Experiment-as-Market (EXaM)*. EXaM optimally randomly assigns each treatment to subjects predicted to experience better treatment effects, or to subjects with stronger preferences for the treatment. EXaM is also almost incentive compatible for preference elicitation. Finally, EXaM unbiasedly estimates any causal effect estimable with standard RCT. I quantify these properties by applying EXaM to a water cleaning experiment in Kenya (Kremer et al., 2011). Compared to usual RCT, EXaM substantially improves subjects' predicted well-being while reaching similar treatment effect estimates with similar precision.

Keywords: Clinical Trial, Medical Ethics, Field and Social Experiment, Online A/B Test, Mechanism Design, Causal Inference, Development Economics, Water Source Protection, Discrete Choice