Differential Privacy in Economics Experiments: A Public-Good-Game Application

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Abstract

Differential privacy (DP) is increasingly proposed as a tool for systematically adding noise to computations on sensitive data in order to balance the conflicting needs for accurate public information and individual privacy. We apply DP to the publicly announced contributions in an otherwise-standard public-good lab game. First, we demonstrate, in a well-studied setting, how this computer-science theory can be used by experimental economists. Second, we provide new evidence on the behavioral reaction, in public-good contribution, to a (quantized) continuum of privacy-loss levels, going beyond past evidence from binary private-vs-public designs. Third, we use the new evidence to investigate a probabilistic interpretation of the visibility/salience parameter in a model of prosocial behavior.