

The Appeal of Lotteries and their Use in Incentive Design

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The tendency to overweight small probabilities is a decision bias commonly invoked to explain the appeal of state lotteries. Since lotteries offer the chance of a substantial increase in wealth for an insubstantial price, their appeal is also influenced by the combination of myopic decision making and the underweighting of small dollar amounts, as people fail to account for how small amounts add up over time (Haisley et al., 2008a). Using lotteries as contingent incentives is a strategy to capitalize on these decision biases to motivate beneficial behaviors. The use of contingent financial incentives to align people's short-term and long-term interests has become increasingly important in preventative healthcare and policy, as evidenced by rise of conditional cash transfer programs.

Recent research suggests that a "combination lottery" incentive is effective in promoting compliance with prescription medication (Volpp et al., 2008a) and a weight loss program (Volpp et al., 2008b). This incentive combines two independent lotteries: one with a moderate probability of a moderate reward and one with a small probability of a large reward. The current research examines whether lottery-linked incentives are actually more effective than their expected value and whether a "combination lottery" is more effective than simpler lotteries with equivalent expected values. Further, low income populations disproportionately play state lotteries and inducing people to *feel* poor increases the appeal of lottery tickets (Haisley et al., 2008b). This implies that lottery-linked incentives may be particularly motivating in low income populations.

These questions were examined using a pay-for-performance anagram solving task in experiments conducted in a student population and in the general population. Results indicate that lottery-linked incentives are not universally more effective than their expected value. However, the combination lottery incentive resulted in greater task performance compared to all other types of incentives examined. The combination lottery offered a 20% chance to win \$2.50 and a 1% chance to win \$50 for each anagram solved. It out performed its expected value of \$1 and simpler lotteries with equivalent expected values: a "high probability" lottery with a 20% chance to win \$5 and a "low probability" lottery with a 1% chance to win \$100.

Support was found for the hypothesis that lottery incentives can be particularly motivating in low income populations. A "jackpot" incentive, designed to mimic the high potential payout of state lottery tickets, offered a .1% chance of \$1,000. There was a significant interaction between type of incentive (jackpot vs. guaranteed) and income. This incentive produced greater task persistence for low income compared to high income participants in the general population.

Taken together, the results suggest that the use of lotteries as incentives for targeted behaviors is a promising strategy to boost motivation compared to using direct, guaranteed payments. Further, traditional types of lotteries that offer a small chance of a high reward may be particularly useful for increasing motivation in low income populations.

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