**Intertemporal Choice: A Laboratory Investigation of Choice Behavior under**

**Additive and Compound Wealth Growth**

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Abstract: Economic theory has traditionally treated time discounting, or the devaluation in one’s mind of future payoffs compared to present ones, as part of a decision maker’s preferences. A new literature, sometimes referred to as “Ergodicity Economics,” focuses on alternate decision-making models under which time discounting is dependent on environmental factors rather than individual preferences. In this study, we begin an investigation of a new model that predicts decision makers will maximize the likelihood of a positive rate of growth in wealth.

We consider the choice between two payment plans under two different environments. Option A is a plan of small but frequent payments, while Option B is a plan of larger payments over longer intervals, both options ending after a fixed number of days. The first environment is one without interest rates, while the second is with compounding interest on the current balance of each account. Questions were designed with A to be optimal, B to be optimal, or for both to be equally ideal options. Decision makers were also given the option of receiving their payment in 10 days by participating in a lottery that could lower their total earnings.

Regarding the first environment, the additive processes, the results were consistent with the predictions. In particular, the answers that were calculated to be ideal were often chosen for each question. Though less sharply consistent, the results of the second environment, the compound processes, were still broadly consistent with the predicted answers of the questions. The difficulty in calculating with the inclusion of an interest rate likely contributed to this result. The data generated by the early payment option lottery has not yet been analyzed in detail, though we believe these results will reflect factors relating to uncertainty rather than an indication of a pure time preference.