Microeconomics 1 Lecture Notes

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Introduction

This thesis studies principles underlying individual behaviour, information processing, and resource allocation. It focuses on foundational issues in behavioural economics, where the concepts investigated in this thesis are introduced. Behavioural economics—which examines variations in individual behaviour, belief revision, and normative judgement—has historically been characterized by a reduced-form approach (Spiegler, 2019). This approach explains empirical observations through reinterpretations of classical theoretical constructs that intuitively capture relevant psychological mechanisms. In contrast, I argue that more nuanced treatments are necessary, requiring the development of novel theoretical tools rather than merely reinterpreting existing ones. As a result, I derive distinctions within the behavioural phenomena under study that are difficult to discern without explicit modelling.

References

Spiegler, R. (2019). Behavioral economics and the atheoretical style. *American Economic Journal: Microeconomics*, *11*(2), 173–194. 1

Lecture 1

Introduction to Expected Utility

1.1 How to model uncertainty

Let's start by thinking about how we represent uncertainty. Say that you did a bet with a friend of yours, if a fair coin toss results in head, you get 10 euros, otherwise you pay 10 euros to your friend. There are two outcomes, 10 and -10, and since the coin is fair, each realises with a probability of $\frac{1}{2}$. The describe this simple example, we started from a set of outcomes, monetary transfers, and detailed the probability of each outcome realising. I refer to such object as a *lottery*. Denote the set of outcomes with X, generic elements of X are x, y, z. For now, we assume that X contains only a finite set of elements. Outcomes are not enough to describe a lottery, we need to consider probability distributions over outcomes, as the $\frac{1}{2}$-$\frac{1}{2}$ distribution of the fair coin above. The set of lotteries over the set of outcomes X is denoted with $\Delta(X)$. Each element of $\Delta(X)$ is a function $p : X \to [0, 1]$ such that $\sum_{x \in X} p(x) = 1$ mapping each outcome x to a number $p(x)$ between 0 and 1, representing the probability x realises, so that the sum of all these probabilities is 1.[1]

Example 1.1. In the example above, the set of outcomes is $\{10, -10\}$ and the lottery induced by the fair coin toss is such that $p(10) = p(-10) = \frac{1}{2}$.

Check Kreps (1988).

References

Kreps, D. M. (1988). *Notes on the theory of choice.* Westview Press. 2

[1]Why do we write the sum $\sum_{x \in X} p(x) = 1$ instead of an integral?