Exam SØK2012 May 2022, 4 hours

Answer all 5 questions. All questions of equal value.

Question 1 Discounting

On Friday you have decided to give up drinking alcohol.

Your decision is whether to have an alcohol drink on a Saturday night out.

The drink will give you a utility now of 5

But if you have the drink you will have regret tomorrow (Sunday) and receive utility 0

Alternative is to not have the drink (utility of 2)

But a better Sunday (utility 8)

(a) Demonstrate, from the perspective of an exponential discounter with a $\beta=1/2$ it is optimal to quit drinking on Friday, and it remains optimal on Saturday
(b) Show what changes if you are a hyperbolic discounter with $\delta=2/3$

Question 2 Strategies

Imagine two people playing 'chicken'. The aim of the game (for both players) is to drive your car at the other player's car and not be the person who swerves (and is the chicken). The payoffs are if you both swerve, each players gets zero. If you swerve and the other person does not swerve, then you receive -2 and they receive 2. If neither swerve, you crash with a payoff of negative 6 to both player.

(a) Set this game out in a payoff matrix
(b) Demonstrate whether this game has a Nash equilibrium in pure strategies
(c) Demonstrate whether this game has a Nash equilibrium in mixed strategies

Question 3 Sunk Costs

You start reading a book. After 10 pages you decide that it is very boring.

Demonstrate and discuss whether you should continue to read the book?

Does it matter whether you bought this book, and it was very expensive, or whether it was a gift you received?

Does it matter if the book is 100 or 500 pages long?

Question 4 Gains and Losses

One day you are walking outside and you find 500 NOK on the ground.

The next day you discover you have a hole in your pocket and 200NOK has fallen out and you have lost it.

(a) Demonstrate the effect of these events on you if you view losses and gains differently (hint use a value function like we have used in the lectures / textbook).

(b) How does this change if you can mentally bundle the events into one amount?

Question 5 Behavioural Game Theory

Consider an ultimatum game where the proposer is given 80NOK and has to choose how much to share with the responders (in 10's of NOK)

(a) What choice of the proposer does standard (analytical) game theory predict?
(b) Discuss the explanations for why, in practice, the proposer might choose a different amount.