

Economics 504, Spring 2007, Problem Set 4A/5

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1. Long Run versus Short Run

	L	C	M	R
T	10,3	3,10	13,7	-1,-1
B	9,9	2,2	12,7	-1,-1

Suppose that in this simultaneous move game player 1 (row player) is a long-run player and player 2 (column player) is a short run player.

- Find the pure and mixed precommitment payoffs, the static Nash payoff and the minmax payoff for the long-run player.
- For large discount factors find the best and worst equilibrium for the long-run player.
- For what discount factors is the answer to part (b) valid?

2. Long Run versus Short Run with Noise

A short-run supplier has the option of supplying a single indivisible item to a long-run firm. The firm has the option of paying for the item or not. If the firm pays, there is a 25% chance that the check gets lost in the mail. (Note: if the check is lost, the supplier does not receive the payment, *and* the firm is not charged for the item.) The firm values the item at \$5.00, and the supplier values the item at \$1.00. The payment is \$4.00, and both parties are risk neutral. Find the best perfect public equilibrium for the firm (of the infinitely repeated game with public randomization) as a function of the discount factor, first, assuming that the supplier can observe whether or not the check is lost in the mail, and second assuming that the supplier can only observe whether or not payment is received.

3. Folk Theorem

Consider the following coordination game:

2,2	1,0
0,1	0,0

- (a) What is the unique static Nash equilibrium?
- (b) Sketch the socially feasible, individually rational set.
- (c) Find a discount factor and subgame perfect strategies such that each player receives 1.5.
- (d) Can you find an information system for which this is an equilibrium in a matching protocol?