HW 15.12

Sunday, November 8, 2020 4:47 PM

Passed Solution review

12. Suppose players 1 and 2 will play the following prisoners' dilemma.

1 \ 2	C	D
C	5, 5	0, 8
D	7, 0	1, 1

Prior to interacting in the prisoners' dilemma, simultaneously each player i announces a binding penalty p_i that this player commits to pay the other player j in the event that player i defects and player j cooperates. Assume that these commitments are binding. Thus, after the announcements, the players effectively play the following induced game.[6]

1 \ 2	C	D
C	5, 5	$p_2, 8 - p_2$
D	$7 - p_1, p_1$	1, 1

(**a**) What values of p_1 and p_2 are needed to make (C, C) a Nash equilibrium of the induced game?

$5 = 7 - p_1 \Rightarrow p_1 = 2$
$5 = 8 - p_2 \Rightarrow p_2 = 3$ $\rightarrow p_1 = 2$ and $p_2 = 3$

(**b**) What values of p_1 and p_2 will induce play of (C, C) and would arise in a subgame perfect equilibrium of the entire game (penalty announcements followed by the prisoners' dilemma)? Explain.

p_1 should be small for higher payoff, therefore...

$p_1 = 2$ and $p_2 = 3$

(**c**) Compare the unilateral commitments described here with contracts (as developed in Chapter 13).

To maximize joint profit, they agree to pick p_i by themselves