

Problem Set 5

Q1. How to establish causal relationship of literacy on income using the potential outcomes framework. Explain as in the hospitalization example we did. Predict what would be the sign of selection bias in this example.

Q2. Consider the ultimatum game where there is \$c to be divided between two players. Person 1 offers person 2 an amount of money \$x, up to \$c. If 2 accepts this offer then 1 receives the remainder of the \$c - \$x. if 2 rejects the offer then neither person receives any payoff/money. Each person cares only about the amount of money she receives, and prefers to receive as much as possible. Find the values of x for which there is a NE of the ultimatum game in which person 1 offers \$x. Is this a pareto efficient allocation?

Q3. An incumbent faces the possibility of entry by a challenger. The challenger may enter or not. If it enters the incumbent may either choose to fight or acquiesce. Assuming perfect information model the game as a sequential game using a game tree. Preferences of the challenger are given as $u_1(\text{In}, \text{Acquiesce}) = 2$, $u_1(\text{Out}) = 1$, $u_1(\text{In}, \text{Fight}) = 0$ and preferences of the incumbent are given as $u_2(\text{Out}) = 2$, $u_2(\text{In}, \text{Acquiesce}) = 1$, and $u_2(\text{In}, \text{Fight}) = 0$

Q4. Represent using a game tree the two-player extensive game with perfect information in which the terminal histories are (C,E), (C,F), (D,G), and (D,H), the player function is given by $P(\Phi) = 1$ and $P(C) = P(D) = 2$, player 1 prefers (C,F) to (D,G) to (C,E) to (D,H), and player 2 prefers (D,G) to (C,F) to (D,H) to (C,E)

Q5. Given, the herders' tragedy of commons game (with payoff shown in the matrix below), what is the minimum level of per unit of cows that can change the NE equilibrium to the Pareto better outcome (Restrict, Restrict)

		Farmer B	
		Restrict	Do not restrict
Farmer A	Restrict	10, 10	6, 12
	Do not restrict	12, 6	8, 8