

Workshop Questions

1. **Welfare Game**

Consider the Welfare Game from last week. The government only likes to offer welfare to paupers if they are actively seeking work. The pauper prefers to get aid without looking for work, but if he is looking for work he'd rather get aid than not. The following pay off matrix represents the utils the government and pauper give to the various outcomes.

		Pauper	
		Seek Work	Idle
Government	Aid	(3,2)	(-1,3)
	No Aid	(-1,1)	(0,0)

(a) Identify the Pareto optimal outcomes, and plot the payoff polygon.

(b) Last week you found the mixed strategy Nash equilibrium and corresponding payoffs for this game. Plot these payoffs on your payoff polygon.

(c) Now find the prudential strategies for both players, and the security levels.

(d) Find the counter prudential strategies.

2. Shared Resources

Now consider the water resource problem for the towns Littleton and Hamlet. They have a choice of digging down to one of two aquifers. One aquifer is shallow, and one is deep. The shallow aquifer is cheap to reach, but can only supply one town. If they both dig there they will deplete the well and will have no water. The deep aquifer is expensive to drill down to, but it provides enough for both towns, and they can consequently share the costs. The payoff matrix for the two towns is shown below.

		Littleton	
		deep	shallow
Hamlet	deep	(10,10)	(3,15)
	shallow	(15,3)	(0,0)

- (a) Identify the Pareto optimal outcomes, and plot the payoff polygon.
- (b) Plot the payoffs of the Nash equilibrium you found last week on your payoff polygon.
- (c) Now find the prudential strategies for both players, and the security levels.
- (d) Find the counter prudential strategies.