Games: Public Goods, Externalities, and Voting

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Public Goods Game

Rules:

- You have two pieces of candy to allocate between yourself and the public good.
- The public good works such that every player receives 3% of the total candy allocated by all players for the public good.
- For example if everyone contributed one piece of candy and there are 68 people playing then each player gets 3% of the total amount of funds raised or 2 pieces of candy each, and each player would have a total payoff of 3 pieces of candy (one saved plus two from the public good).

Externalities

Rules:

- Each of you is a firm choosing whether to produce their goods cleanly or dirty.
- They profits for each firm are:

$$\text{Clean} = .5 + .5n_{clean}$$
$$\text{Dirty} = 1 + n_{clean}$$

  But the pollution creates healthcare costs for each player:

$$\text{Costs} = n_{dirty}$$

- For example if 9 firms choose clean and 6 choose dirty the clean firms would have a total payoff of $5 - 6 = -1$ and the dirty firms would have a total payoff of $10 - 6 = 4$.

Voting

Rules:

- Two players are candidates, the rest are voters. Voters are given a number between 0 and 10 representing their preferred policy position. The candidates each propose a number between 0 and 10 and the voters vote on which they prefer the most.
- The winning candidate gets a chocolate bar. The losing candidate gets nothing. The winning candidate becomes (or stays) the incumbent and they get to choose their policy stance first. A new candidate is chosen from the voters.
- Voters payoff is equal to ten minus the absolute distance between their preferred policy and the winning policy.

Voting

Table: Your Policy Preferences

Player #	Policy	Player #	Policy
1	3	10	5
2	6	11	0
3	9	12	1
4	10	13	10
5	1	14	2
6	10	15	5
7	0	16	1
8	3	17	4
9	7	18	8

Voting

Table: Your Policy Preferences

Player #	Policy	Player #	Policy
19	9	28	1
20	1	29	10
21	10	30	2
22	9	31	7
23	0	32	4
24	8	33	6
25	0	34	8
26	0	35	7
27	2	36	1