Problem Set, Week 18
Commitment
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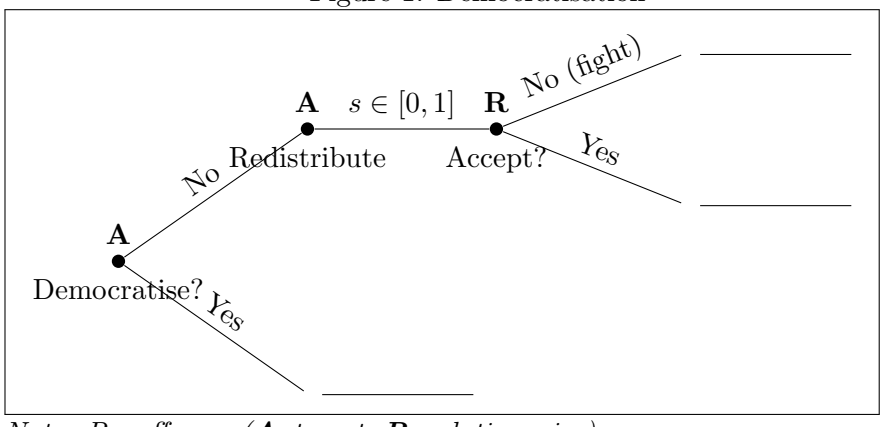
The problem set is based on a simplified version of the Acemoglu and Robinson model of democratisation.

One-period version

To start with, the game lasts one period. The autocrat and some revolutionaries interact in an economy that produces 1 unit of output. The players' payoffs are equal to their consumption.

As shown in Figure 1, the autocrat moves first, and has the choice to democratise or not; it is assumed that if the autocrat democratises, the revolutionaries get all of the output, i.e. they get 1 and the autocrat gets nothing. If he does not democratise, then the autocrat can choose an amount $s \in [0, 1]$ to give to the revolutionaries. The revolutionaries then decide whether to accept the autocrat's gift or to fight. If they fight, they will win with probability p, but pay a cost $k > 0$; the autocrat wins with probability $1 - p$ and pays a cost $c > 0$.

Figure 1: Democratisation



*Note: Payoffs are (**A**utocrat, **R**evolutionaries)*

We will assume for simplicity that if the revolutionaries are indifferent between accepting the autocrat's gift or fighting, they will choose to accept the gift.

1. Fill in the payoffs for the players in terms of s, k, c, and p.

2. What is the smallest payoff that would convince the revolutionaries not to fight?

3. Would the autocrat be willing and able to offer that payment?

We now make two extensions to this model to highlight the commitment problem at the core of Acemoglu and Robinson's theory of democratisation.

Two-periods, revolutionaries consistently strong

Now, assume that the game is played twice. If the revolutionaries accept a transfer s_1 in the first round, or if the revolutionaries fight and lose in the first round, the second round looks just like the first: the autocrat offers s_2 and the revolutionaries can accept or fight. If the revolutionaries fight and win in the first round, or if the autocrat democratises, the revolutionaries take control of the government in the second round and consume 1 in that period. Players discount the future by a factor δ.

To highlight the main feature of the model, we will solve it under stark assumptions about p, the probability that the revolutionaries win if they challenge the autocrat. To begin with, suppose that the revolutionaries are certain to win a conflict in both the first and second periods, i.e. $p = 1$ in both periods.

4. How much would the autocrat have to pay in order to convince them not to fight?

Two periods, revolutionaries strong in the first period and weak in the second

Now suppose that $p = 1$ in the first period but $p = 0$ in the second period, i.e. the revolutionaries are certain to win a war in the first period and certain to lose a war in the second period.

5. How much must the autocrat pay the revolutionaries to avoid a revolt in the first period?

6. Would the autocrat be willing and able to offer that payment?

7. Why ultimately does the autocrat choose to democratise in this model when the revolutionaries are strong in the first period and weak in the second, but not when the revolutionaries are strong in both periods?