1 Repetition

Last time we studied what happens when politicians can not make credible commitments.

We distinguished 3 cases.

We first saw that **the combination of enforceability, verifiability, and electoral competition** is sufficient to ensure implementation of the efficient state-contingent policy even though the cost of providing the public good is unknown.

We then studied what happens when promises are **enforceable but not verifiable**.

Politicians will always lie and claim that the economy is in the expensive state of the world.

Electoral competition will lead them to converge to efficient public good competition in this state.

In the expensive state of the world, they will also not be able to get away with rents.

But since it is sometimes cheap to provide the public good, they are, in general, able to get away with rents.

If promises are **not** even **enforceable**, then there is in a one-period model nothing that stops the politicians from extract all rents in the society.

Of course, a one-shot game is a strong assumption.

We looked at a two-period model where we saw that politicians may give voters some sweet stuff in the first period to get away with some rents also in the second period.

We finally studied whether the candidates' platforms in a partisan model tend to converge or diverge.

Because the candidates care about the policy outcome in addition to winning per se, there is a tendency for divergence.

On the other hand, since these preferences cannot be translated into policy unless the party wins, each party also has an incentive to move toward the middle in order to increase its chances of winning.

We showed that there should be partial convergence.

2 Endogenous Candidates (5.3 in P&T)

Consider now the case when politicians are endogenously chosen and have partisan preferences.

Assume that $r = R = 0$.

The timing is as follows

1. Any citizen, of any income type, in the population can enter as a political candidate at a (consumption) cost of ε.

2. An election is held among those candidates. Each voter chooses the candidate that gives her the highest utility.

3. The elected candidate selects a policy g_P; if nobody runs, a default policy $\overline{g}$ is implemented.

There is no policy commitment.

Hence, an elected citizen with income y^P simply sets policy so as to maximize his utility, which gives the outcome

$$g^P = H_g^{-1}(\frac{y^P}{y})$$

Recall our old example $H(g) = \sqrt{g}$.

The policy preferences of candidate P is then

$$W^i = (y - g)\frac{y^P}{y} + H(g).$$

In this case

$$g^P = \frac{1}{4}(\frac{y}{y^P})^2.$$

The higher income of candidate P, the less public goods are provided.

Voters realize this.

In a one- or two candidate election the candidate who appeals most to the median voter therefore wins.

This model has more than one equilibria.

We start with the simplest where one candidate runs uncontested.

If a median voter has decided to enter, no other would find it worth while to enter because he cannot win and since there is a cost of entering, ε.

Furthermore, since the are no benefits from holding office per se, no second candidate with income y^m has an incentive to run.

This is because he too would only incur the entry cost without affecting the policy outcome.

Hence, the endogenous candidate is pulled toward the middle and coincides with the standard median-voter equilibrium.

The condition for an equilibrium to exist where only the median voter is a candidate is

$$[W^m(g^m) - W^m(\overline{g})] \geq \varepsilon$$

Candidates do occasionally run uncontested in majoritarian electoral systems.

In elections in the southern US for example, Democratic candidates have sometimes run uncontested.

The model also allows for equilibria with two candidates, R and L.

Two things are required.

First that two candidates are willing to run, that is the benefits exceeds the entry cost.

Second, that both candidates stand some chance of winning.

This means that voters with median income must be indifferent between R and L.

So the conditions are

$$\frac{1}{2}[W^R(g^R) - W^R(g^L)] \geq \varepsilon$$

$$\frac{1}{2}[W^L(g^L) - W^L(g^R)] \geq \varepsilon$$

$$W^m(g^R) = W^m(g^L)$$

where a candidate of type y^p is associated with policy $g^P = H_g^{-1}(\frac{y^P}{y})$.

We note that we have a multiplicity of equilibria.

A third candidate with income between y^L and y^R will not find it optimal to enter given that voters vote strategically.

This is because voters who cannot coordinate their votes, realize that a vote on the potential entrant is thrown away and the only thing it does is to give the incumbent opponent the upper hand in the election.

In reality, party could coordinate support of a large coalition of voters, but this is not included in the model.

3 Rent seeking

Anne Kreuger (1974) initially coined the term "rent seeking" to describe competition for government favors but today the term is much broader. Examples of rent-seeking behavior include competition for monopoly power, a political position, or a position within a firm.

3.1 The "Tullock-model"

We start with the model in its simplest form.

n risk neutral agents compete for a rent ω.

Agent i may make investments, x_i, to increase the probability of winning the rent.

These investments are sunk costs.

The probability to win for agent i is given by

$$p_i = \frac{x_i}{\sum_{j=1}^{n} x_j}$$

So the agent solves

$$\max_{x_i} \frac{x_i}{\sum_{j=1}^{n} x_j}\omega - x_i.$$

The first order condition is

$$\frac{1}{\sum_{j=1}^{n} x_j} - \frac{x_i}{(\sum_{j=1}^{n} x_j)^2}\omega = 1.$$

Since agents are identical we can impose symmetry to get

$$(\frac{1}{nx} - \frac{x}{n^2 x^2})\omega = 1.$$

Solving for x yields

$$x = \frac{n-1}{n^2}\omega.$$

Total investments, $nx = X$, are equal to

$$X = \frac{n-1}{n}\omega.$$

Comparative statics:

The more contestants, the lower are the expenditures per head. Formally,

$$\frac{\partial x}{\partial n} = -\omega \frac{n-2}{n^3} < 0$$

The more contestants, the larger are total expenditures. Formally,

$$\frac{\partial X}{\partial n} = \frac{1}{n^2}\omega > 0$$

Moreover, the larger the value of the prize, the larger are the individual and total expenditures.

In addition, as $n \to \infty$, $X \to \omega$.

Consider now a somewhat more general version of the model.

The probability contest success function, which determines the outcome of the game is given by

$$p_i = \frac{x_i^r}{\sum_{j=1}^n x_j^r}$$

where $r > 0$ is a parameter determining the impact of the investments.

Agent i's problem is to solve

$$\max_{x_i} \frac{x_i^r}{\sum_{j=1}^n x_j^r}\omega - cx_i.$$

The first-order condition is

$$\frac{rx_i^{r-1}}{\sum_{j=1}^n x_j^r} - \frac{x_i^r r x_i^{r-1}}{(\sum_{j=1}^n x_j^r)^2}\omega = c$$

or, since the agents are identical,

$$\frac{rx^{r-1}}{nx^r} - \frac{x^r r x^{r-1}}{(nx^r)^2}\omega = c.$$

Rearranging terms yields

$$\frac{rx^{2r-1}(n-1)}{n^2x^{2r}}\omega = c.$$

Hence, the optimal investments for each agent is given by

$$x^* = r\frac{n-1}{cn^2}\omega.$$

Total investments are

$$nx^* = r\frac{n-1}{cn}\omega.$$

The rate of rent dissipation is defined as

$$\delta = \frac{nx}{\omega}.$$

This is the total cost of the rent-seeking activities as a share of the price. It is in this model equal to

$$\delta = r\frac{n-1}{cn}.$$

Comparative statics:

The previous results are still valid.

In addition,

$r \Uparrow \longrightarrow \delta \Uparrow$. The more impact on the probability to win the investments have, the more of the rent is dissipated.

$c \Uparrow \longrightarrow \delta \Downarrow$. The higher the cost of making investments, the less of the rent is dissipated.

We now consider rent seeking among groups.

3.2 "Collective Rent Dissipation" (Nitzan 1994)

Assume that a number of groups compete over a rent and, if won, the rent is distributed either through a schedule based on effort or through a schedule based on egalitarian grounds.

Investments of agent k in group i is given by X_{ki} and the total amount of investments within group i is given by $X_i = \sum_{i=1}^{n(i)} X_{ki}$. There are $n(i)$ agents in group i and in total there are N identical risk neutral agents.

Group i's probability of success in the contest, π_i, is given by the value of its outlay X_i relative to total outlays X made by all groups engaged in rent seeking. That is,

$$\pi_i = \frac{X_i}{X}$$

where $X = \sum_{j=1}^{n} X_j$.

The sharing rule is assumed to be

$$f_i = \frac{X_{ki}}{X_i}(1-a) + a\frac{1}{n(i)}.$$

If $a = 0$, then the wage schedule is based on effort. If $a = 1$, then the wage schedule is egalitarian.

Agent k in group i solves

$$\max_{X_{ki}} \frac{X_i}{X}\left(\frac{X_{ki}}{X_i}(1-a) + \frac{a}{n(i)}\right)\omega - X_{ki}.$$

The first order condition is

$$\left(\frac{X - X_{ki}}{X^2}(1-a) + \frac{a}{n(i)}\frac{X - X_i}{X^2}\right)\omega - 1 = 0$$

3.2.1 A sharing rule based on effort a=0

Assume first that $a = 0$. We then get

$$(X - X_{ki})\omega = X^2,$$

or, since agents are identical,

$$x(N - 1)\omega = XNx.$$

That is,

$$X = \frac{N-1}{N}\omega.$$

Note that this is exactly the same result as in the original "Tullock-model".

The reason is that the distribution rule generates positive incentives to participate in the collective group that just counterbalance the negative size effect due to free riding.

3.2.2 An egalitarian sharing rule a=1

Assume instead that $a = 1$. Recall the first order condition

$$(\frac{X - X_{ki}}{X^2}(1 - a) + \frac{a}{n(i)}\frac{X - X_i}{X^2})\omega - 1 = 0.$$

When $a = 1$, this simplifies to

$$\frac{1}{n(i)}\frac{X - X_i}{X^2}\omega - 1 = 0$$

or

$$(X - X_i)\omega = n(i)X^2$$

By summing over $i = 1, ..., n$ (note that $nn(i) = N$ and $nX_i = X$) we get

$$X(n - 1)w = NX^2$$

That is,

$$X = \frac{n - 1}{N}\omega.$$

Comparative statics:

(1) $n \Uparrow \longrightarrow X \Uparrow$. The more groups there are, that is, the smaller the group size, the larger are the investments in rent seeking.

This result is due to the large free riding effects in large groups.

(2) $N \Uparrow \longrightarrow X \Downarrow$. The larger the population, the smaller are the investments in rent seeking.

That is, if the population is large and there are few groups, the investments in rent seeking will be small.

An example:

If $N = 100$ and $n = 2$, then $X = \frac{\omega}{100}$

If $N = n = 100$, then we are back in Tullock's model and $X = \frac{N-1}{N}\omega$. In this case $X = \frac{99}{100}\omega$.

3.2.3 A mixed sharing rule 0<a<1

Recall again the first order condition

$$(\frac{X - X_{ki}}{X^2}(1-a) + \frac{a}{n(i)}\frac{X - X_i}{X^2})\omega - 1 = 0.$$

In general, when $0 < a < 1$, again by summing over $i = 1, ..., n$, we get

$$X = \frac{(1-a)N + na - 1}{N}\omega.$$

Punch line: $\frac{\partial X}{\partial a} = \frac{n-N}{N} < 0$. A society applying a more egalitarian rule for distributing rents within groups is less wasteful.