

5. Agency problems - Exercises

Problem 1: Political Rents (in Lopsided Elections)

Problem 1 [Chapter 4.8, P&T (2000)]

There are two political candidates (A and B) each proposing a level of taxes τ and a level of spending on public goods g . The public good g is financed through proportional income taxes. The candidates can, however, also use public funds for private consumption. The amount diverted to private consumption is denoted r . A continuum of citizens of measure one, indexed by i , all have the same income 1. The government's budget constraint is thus $\tau = g + r$. The citizens's preferences over private consumption, c , and public good, g , are described by $u^i = c^i + H(g)$ and $c^i = (1 - \tau)$.

Citizen will vote for candidate A if:

$$(1 - g_A - r_A) + H(g_A) > ((1 - g_B - r_B) + H(g_B) + \sigma^i + \delta).$$

Parameters σ^i and δ describe the individual's preferences in favor of party B and are distributed uniformly on $[-\frac{1}{2\phi}, \frac{1}{2\phi}]$ and $[-\frac{1}{2\varphi}, \frac{1}{2\varphi}]$, respectively.

Political candidates care only about their private consumption, r , and their utilities are r if they win the election and zero otherwise.

Problem 1: Political Rents (in Lopsided Elections)

- a) First, consider the case in which the candidates know the value of δ is zero. Solve for the equilibrium levels of taxes and rents.
- b) Now consider the case in which the candidates know the value of δ with $\delta > 0$. Solve for the equilibrium levels of taxes and rents.
- c) Now consider the case in which the candidates do not know the value of δ , but they know that its expected value is zero. Solve for the equilibrium levels of taxes and rents.

Problem 2: Political Rents with Term Limits

Problem 2 [Chapter 4.8, P&T (2000)]

Considering the model in subsection 4.4: An incumbent politician proposes a level of spending on public goods, g , and a level of private rents for him- / herself, r . The public good g is financed through proportional income taxes.

A continuum of citizen of measure one, indexed by i , all have the same income y . The government's budget constraint is $\tau y = \theta g + r$, where θ is a parameter which measures the cost of providing public goods. Citizen i 's preferences for private consumption c^i and a public good g as described by $u^i = c^i + H(g)$, where $c^i = y(1 - \tau)$.

The incumbents utility consist only of consumption of the rents, $u = \gamma r$. the following game is repeated infinitely many periods.

- (1) θ_t is realized and observed by everybody.
- (2) Voters set a reservation utility for re-electing the incumbent.
- (3) The incumbent sets the policy variables, r_t , and g_t .
- (4) Elections are held in which the voters choose between the incumbent and an opponent which has the same characteristics as the incumbent.

Problem 2: Political Rents with Term Limits

A politician maximizes $\sum_{t=0}^{\infty} \beta^t p_t \gamma r_t$, where β_t is the subjective discount factor and p_t is the probability that the incumbent is in office at period t . Assume that a politician who is voted out of office cannot be reelected.

The incumbent at period 0 maximizes $\gamma r_0 + \beta p_1 R_{I,1}$, where $R_{I,1}$ is the value of being in office in $t = 1$. The voters coordinate on the same retrospective voting strategy, voting for the incumbent if their utility is $\geq \varpi_t(\theta_t)$.

- Solve the optimal voting strategy $\varpi_t(\theta_t)$.
- Suppose term limits are imposed that do not allow the incumbent to stay in office more than three periods. How will this affect the voters' ability to discipline the incumbent?
- Now suppose that there are two parties to which the candidates may belong, as before there are term limits after three terms. Assume that the voters use the rule to vote for a candidate belonging to the same party as the incumbent if and only if rents are below some specific level. Suppose further that a new party candidate may bribe the incumbent not to keep rents too high in his/her third term. What is the new equilibrium level of rents?