Political Economy

Final exam

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The exam lasts 120 minutes. Documents are not allowed. The use of a calculator or of any other electronic devices is not allowed.

Exercise 1 — 10 points

Let us consider a society populated by n citizens and a single bureaucrat who is in charge of producing a public good.

The bureaucrat can exert effort $e \in [0, 1]$ to produce the good. Effort e costs the bureaucrat $ce^2/2$. Effort is unobserved by citizens. The probability of the public good being produced is e. Each citizen gets utility $u(n)$ if it is produced and 0 otherwise.

A citizen is randomly chosen to be a monitor. She can pay a cost $\alpha m^2/2$ to try to observe whether the good was produced or not. The observation is successful with probability $m \in [0, 1]$. If she observes that the good has not been produced, the monitor pays a signaling cost s to inform other citizens. In that case, the bureaucrat gets punished and suffer a loss $p(n)$.

The timing of decisions is as follows: (i) the monitor announces m, (ii) the bureaucrat chooses e, (iii) the monitor tries to observe whether the public good was produced or not if $m > 0$, and (iv) payoffs are realized.

1. Determine e^*, the optimal production effort of the bureaucrat, m^*, the optimal monitoring effort of the monitor, and their equilibrium values. — 3
2. Comment on how equilibrium e and m vary with α, s, $p(n)$, and $u(n)$. — 2
3. Assume $u(n)$ is constant and $p(n) = n$.
   - 3.1. What kind of situation might be described by these assumptions? — 1
   - 3.2. How does the equilibrium situation change with n? — 1
4. Assume $u(n) = 1/n$ and $p(n)$ is constant.
   - 4.1. What kind of situation might be described by these assumptions? — 1
   - 4.2. How does the equilibrium situation change with n? — 1
5. Comment. — 1

Exercise 2 — 5 points

Consider a probabilistic voting framework in which two parties compete to be elected. Each party $i = A, B$ has the following indirect utility function:

$$w_i = -(q - q_i^*)^2,$$

where q is the implemented policy and q_i^* is party i bliss point. Let us assume that $q_A^* = 0$ and $q_B^* = 1$.

Parties announce platforms q_A and q_B that will be implemented should the party win the election. Both parties are uncertain about q_m, the policy preferred by the median voter. They assume that q_m is uniformly distributed between $\frac{1}{2} - a$ and $\frac{1}{2} + a$, where $a \in (0, 1)$. Let us define p_A as the probability that party A wins the election.

1. Write down a party's optimization problem and the associated first-order condition. Explain why platforms will be such that parties will never choose their bliss points and will never converge completely. — 2

2. Briefly explain why p_A can be expressed as: — 1

$$p_A = \mathbb{P}(q_m - q_A < q_B - q_m).$$

3. Solve for the equilibrium policies under the assumption that the equilibrium is symmetric, i.e. $q_A = 1 - q_B$. — 1

4. Discuss how equilibrium platforms depend on the level of uncertainty as described by a. — 1

Question — 5 points

Discuss the role of leaders' time horizon in autocracies.