Political Economy

Optional intermediary exam

Marc Sangnier - marc.sangnier@univ-amu.fr

January 4th, 2016

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 — 6 points

Let us consider an economy populated by N individuals indexed by $i = 1, \dots, N$. Each voter has preferences over a publicly provided good y and private consumption c_i. Voter i's preferences are represented by the following utility function:

$$U_i = c_i + \alpha_i \log(y),$$

where α_i is specific to each agent. The mean of this parameter in the population is $\bar{\alpha}$.

Each individual is endowed with 1 unit of the private good. The technology used to produce the public good is such that 1 unit of private good is required to produce 1 unit of public good. The government raises a per capita tax q to finance the production of the public so that $y = Nq$. Hence, agent i's budget constraint is $c_i \leq 1 - q$, and her indirect utility function is:

$$V_i(q, \alpha_i) = 1 - q + \alpha_i \log(Nq).$$

1. Give individual i's bliss point, i.e. her preferred policy q_i^*. 1
2. Assume that the social welfare function is the sum of individuals' utility functions. Show that the socially optimal policy q^* can be written as: 1

$$q^* = \frac{\sum_{i=1}^{N} \alpha_i}{N} = \bar{\alpha}.$$

Let us model Downsian political competition. Two political parties $P = A, B$ compete for office. They are only office-motivated. They announce platforms q_A and q_B to which they can commit. The election takes place under the majority rule. Each voter i votes for the party that will provide him with the highest utility. Let us note q_m^* the median voter's bliss point. π_P is the vote share of party P. The probability of P winning the election is $\mathbb{P}(\pi_P \geq \frac{1}{2})$.

3. Carefully describe the political competition and its outcome. That is, determine parties probabilities of winning, their equilibrium platforms and the one that is finally implemented. 3
4. Under what conditions will Downsian political competition achieve the social optimum? Comment. 1

Exercise 2 — 10 points

Consider a two-period model with politicians that can be *congruent* or *dissonant*. The share of congruent politicians in the pool of potential leaders is π. In each period $t = 1, 2$, the leader in charge chooses a state-dependent policy $e_t(s_t, i)$ where $i \in \{C, D\}$ is the type of the incumbent politician and $s_t \in \{0, 1\}$ is the state of the world at time t. Each state can occur with equal probability and is only observed by the incumbent politician. Citizens, which are represented by a single representative voter, receive $V_t = \Delta$ if $e_t = s_t$, and $V_t = 0$ otherwise. Citizens do not observe politicians' type. Both citizens and politicians discount the future at rate $\beta \in [0, 1]$. Congruent politicians choose e_t to maximize citizens' payoff. In contrast, dissonant politicians receive a private rent r_t for setting $e_t \neq s_t$. Rent are drawn from the cumulative distribution function $G(r)$ with mean μ and finite support $[0, R]$. In each period, the incumbent politician receives wage E for being in office. We assume $R > \beta(\mu + E)$.

The timing and the election rules of this model are as follow. (i) A random incumbent is selected from the pool of potential leaders and r_1 is drawn from $G(r)$ is she is dissonant. (ii) Nature determines the state of the world s_1. (iii) The incumbent politician chooses e_1 and receives her payoff. (iv) Voters observe V_1 and decide whether to reelect the incumbent or to replace her by a challenger drawn from the pool of potential leaders. (v) r_2 is drawn from $G(r)$ if the incumbent politician is dissonant, nature determines s_2, the incumbent politician chooses e_2, etc. The world ends at the end of period 2.

1. Let us note λ the probability that a dissonant incumbent behave congruently. Show that voters will always reelect an incumbent that chooses $e_1 = s_1$. — 1
2. What are politicians' optimal decisions in period 2? — 1
3. What are politicians' optimal decisions in period 1? Give the analytical value of λ and explain how it varies with relevant parameters. — 2
4. Write down $\mathbb{V}_1$ and $\mathbb{V}_2$, the ex-ante voters' welfare in period 1 and 2. Discuss how these quantities and total ex-ante welfare $\mathbb{W}$ vary with π and λ. Interpret. — 2
5. Write down $\mathbb{R}_1$ and $\mathbb{R}_2$, the expected values of rents in period 1 and 2. Which one is larger? Discuss how these quantities vary with π and λ. Interpret. — 2
   Hint: Let us note μ' the mean of r_t over $[\beta(\mu + E), R]$ and assume that $\mu' = \mu + \varepsilon$, with $\varepsilon \approx 0$.
6. Assume the representative voter can set the incumbent's wage E at cost $C(E)$. Write down the optimization program that would allow to optimally choose E. Explain the trade-off faced by the representative voter. — 2

Question — 4 points

Discuss the role of information in the relationship between politicians and voters.