Advanced Political Economics

Problem Set 1

Due Date: Thursday, October 17, 2013

You are allowed to work in groups, with a maximum of 4 (four) members for each group. You should hand in your answers on the 17th of October at the start of the class, or send an email with the answers to Giacomo Broggi (giacomo.broggi@unibocconi.it) and Riccardo Puglisi (riccardo.puglisi@unibocconi.it). The deadline for sending the email is 8:45 am on the 17th.

1. **Policy decisions in different Voting Models**

   Consider an economy with three types of agents, $i \in \{A, B, C\}$. All agents have the same exogenous income $y > 2$ and are subject to a proportional income tax τ. Government revenue per capita τy is spent on two types of public goods, in per capita terms: q_1 and q_2. Individuals also consume a private good c. The preferences W_i of a type i are:

$$\begin{aligned} W_A &= ln(c) + ln(1+q_1) \\ W_B &= ln(c) + a\ln(1+q_2) \\ W_C &= ln(c) + ln(1+q_1) + b\ln(1+q_2) \end{aligned}$$

   (a) Compute the bliss points of each type of agents, $i \in \{A, B, C\}$, over the two public goods, q_1 and q_2.

   (b) Consider a simple probabilistic voting model with two opportunistic candidates. The three types of agents, $i \in \{A, B, C\}$, have preferences over the policy (q_1,q_2) according to the utility function above, W_i, and ideological preferences for one party or another. Ideological preferences in each group are uniformly distributed, and all groups have the same unitary density. As usual in this probabilistic voting model, there is also a common popularity shock that hits the candidates before the elections, which is assumed to be uniformly distributed with unitary density. Finally, assume that $a = b = 3/2$, and that all groups have equal size, $\alpha_i = 1/3$ for $i \in \{A, B, C\}$. Calculate the equilibrium policy vector (q_1,q_2) in this probabilistic voting model.

   (c) Consider now a political environment with sequential issue-by-issue voting. In other words, decisions on the provision of public goods are taken at simple majority by all agents but one issue at a time. The ordering of voting is the following: first, all agents vote on q_2. Then, all agents vote on q_1. Calculate the equilibrium policy vector (q_1,q_2) in this sequential issue-by-issue voting model. How does your result compare with the equilibrium in the probabilistic voting, and with the agents' bliss points?

2. **Bargaining in legislatures**

Suppose that a legislature is made of three members, who are interested in receiving a share of a *size-two* pie. A proposal passes by simple majority, and there is closed rule, i.e. no possibility of amendments. Further assume that a member who is indifferent between accepting or rejecting a proposal would accept it. All members have a common discount factor $\delta \in [0, 1]$. Finally, if in the last stage of the game no proposal is accepted, all members receive a default payoff of zero.

(a) Suppose that there are three sessions in the bargaining game, and that members have equal probability of recognition. Further assume that a recognized member, if to choose to whom to promise a share of the pie, would randomize with equal probabilities. What is the subgame-perfect Nash equilibrium of the game?

(b) What is the ex ante value of the game described above? Let the proposal power of the recognized member be calculated as the difference between her payoff and the expected payoff of not recognised members. How does this proposal power change as a function of δ?

(c) Now, suppose that there are only two sessions in the bargaining game, and that recognition probabilities are now different. More precisely, let $p_1 = 0.5$, $p_2 = 0.4$ and $p_3 = 0.1$. What is the subgame-perfect equilibrium of the game? Does the assumption of equal probabilities of inclusion in the winning coalition make sense here? Finally, you should also calculate the ex ante value of the game for the three members.

3. **True or False**. State clearly whether it is true or false. Briefly explain your answer.

(a) In a model with three opportunistic candidates –and voters that only care about policies–, there is an equilibrium with the three candidates locating at the median voter's position.

(b) When the assumptions of the median voter theorem hold, the policies proposed by two opportunistic candidas within a probabilistic voting model always coincide with the ones predicted by the median voter theorem itself.

(c) In the model of local public goods, the presence of a lobby would entail overprovision of the public good at the aggregate level.