

Political Economy II (Political Economics), Fall 2015, Final Exam

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Problem 1: Answer the following questions.

- (1) Show that the existence of a Condorcet winner does not require every voter to have a single-peaked preference, by constructing a voting model consisting of three voters, A , B , and C and three choices, x , y , and z . Assume that each voter's preference does not exhibit indifference between any pair of the choices and thus use the notation, \succ , to denote his or her preference ordering.

Suppose that the three voters' preferences are $x \succ y \succ z$, $x \succ z \succ y$, and $z \succ y \succ x$, respectively. Then, voter 2's preference is not single-peaked but x is the unique Condorcet winner.

- (2) Explain the paradox of *not* voting, referring to why it is a paradox.

If voters are rational, then they will go to the poll if and only if its expected benefit is greater than or at least equal to its cost. Because the probability of the electoral outcome being changed by one vote is infinitesimally small, this condition rarely holds so that rational voters should abstain. In reality, however, a large share of population turn out in elections in spite of the above theoretical prediction, which is a paradox.

- (3) Explain why the soft-budget problem occurs in intergovernmental relationships, using the word, *commit* or *commitment*.

The soft-budget problem occurs when the central government cannot commit to not giving financial help ex post to local governments who run deficits. Expecting the central government's ex post help, local governments lose incentives to balance their budgets.

Problem 2: Economists say that *market failure* occurs when the equilibrium in perfectly competitive markets fails to achieve a Pareto efficient allocation. However, it is considered not appropriate to say that *government failure* occurs when the government intervention to the markets fails to achieve a Pareto efficient allocation.

- (1) Explain why the definition proposed above is not appropriate.

To restore an efficient allocation, the government needs information about consumers' preferences, firm's technologies, and the resource of the whole economy. Such information is usually beyond the reach of the government, and thus we cannot expect the government to be able to implement policies for a Pareto efficient allocation.

- (2) What definition of government failure is proposed by Besley and Coate?

They say that government failure occurs when a Pareto-improving policy is within the reach of the government but it does not carry out that policy.

- (3) Point out a limitation, or a weak point, of Besley and Coate's definition.

Their definition concerns only about the efficiency of resource allocation and does not take into account the fairness of income distribution. Even if a small group of people are treated favorably and the rest are very poor, there is no government failure as far as there is no Pareto-improving policy available to the government.

- (4) The Chicago school argues that any inefficient government will be removed through electoral competition. Explain their logic.

If the incumbent government carries out an inefficient policy, then a challenger will run for office with a promise of implementing a Pareto-improving policy. Then, all the voters should vote for the challenger and thus inefficient policies cannot survive.

- (5) According to the Virginia school, elections cannot stop the government from behaving like a *Leviathan*. Explain why they cannot.

Because it is rational for the majority of voters to be uninformed about issues related to elections, electoral competition does not necessarily guarantee that candidates behaving in the best interest of the majority of citizens will win the race.

Problem 3: Suppose that there are three person-voters, 1, 2, and 3, whose preferences over the provision of a public good are represented by their respective marginal benefit functions (measured in dollars) as follows:

$$MB_1 = 70 - 2g, \quad MB_2 = 80 - 5g, \quad \text{and} \quad MB_3 = 60 - g,$$

where g is an amount of the public good. The cost of providing a unit of the public good is equal to 90 dollars. Answer the following questions.

- (1) What is the Pareto efficient amount of the public good? Note that in this setting it coincides with the amount that maximizes the social surplus.

Using the Samuelson condition, the Pareto efficient amount is the solution to $MB_1 + MB_2 + MB_3 = 90$, which yields $g = 15$.

- (2) Consider a system of personalized prices, θ_1 , θ_2 , and θ_3 , where person-voter i has to pay θ_i dollars for consuming each unit of the public good. The public good is provided when everyone demands the same amount. The government calculates and sets the personalized prices to equalize everyone's demand. What personalized prices should the government charge to equalize everyone's demand?

Combining $MB_i = \theta_i$ and $\theta_1 + \theta_2 + \theta_3 = 90$, we have $g = 15$, $\theta_1 = 40$, $\theta_2 = 5$, and $\theta_3 = 45$.

- (3) Point out an advantage and a disadvantage of the system of personalized prices.

An advantage is that the government can provide the public good at the Pareto-efficient level. A disadvantage is that the system requires the government to know each voter's marginal benefit curve, the information which is not usually available to the government.

- (4) Suppose that the cost of providing the public good is equally shared by the three person-voters and a series of pairwise majority voting is employed to decide how much to provide out of the set of alternatives, $\mathcal{A} = \{g \mid 0 \leq g \leq 40\}$. Who is the median voter, and what amount of the public good will be provided?

Because each voter pays 30 for consuming one unit of the public good, the most-preferred amounts are $g_1 = 20$, $g_2 = 10$, and $g_3 = 30$. From this, we know that voter 1 is the median voter and the government will provide his or her most preferred amount, 20.

Problem 4: Consider a policymaking in special interest politics. Each citizen of the society belongs to one and only one of the three different groups, M (Manufacturing), A (Agriculture), and V (general Voters). The alternative policies chosen by the government are X and Y . The following table shows the monetary benefits enjoyed by the respective groups.

p	M	A	V
X	100	70	90
Y	60	100	120

Suppose that group $i = M, A, V$ offers a conditional schedule of bribes to the government, denoted respectively by $(c_M, 0)$, $(0, c_A)$, and $(0, c_V)$, where (x_i, y_i) means that group i promises to pay $x_i \geq 0$ if the government chooses X and $y_i \geq 0$ if it chooses Y . The government chooses a policy to maximize the amount of money it will receive.

The game proceeds as follows. In the first stage every group offers its promise simultaneously, and in the second stage the government chooses a policy given the conditional promises offered in the first stage. Consider a subgame-perfect Nash equilibrium (SPNE) of this game.

- (1) Spell out the conditions that (c_M, c_A, c_V) must satisfy for the existence of a SPNE with the government choosing X .

The conditions are:

$$\begin{aligned}
 c_M &= c_A + c_V \\
 100 - c_M &\geq 60 \\
 70 &\geq 100 - c_A \\
 90 &\geq 120 - c_V.
 \end{aligned}$$

- (2) Show that no SPNE exists with the government choosing X , by drawing a picture in the $c_A - c_V$ space.

The set of the above conditions is reduced to $c_A \geq 30$, $c_V \geq 30$, and $c_A + c_V \leq 40$. We can verify that there exists no area of (c_A, c_V) in the $c_A - c_V$ space that satisfies these inequalities.

- (3) In the above story it is assumed that the general voters can engage in lobbying and compete with other special interest groups. However, this assumption is quite unrealistic. Why is it considered difficult for a group of large population like general voters to engage in lobbying?

The outcomes (i.e., changes in policy decision) of lobbying are of a public-good nature. That is, those who did not participate in lobbying can enjoy the benefits. Because of this, successful organization of lobbying requires to punish members who attempt to free-ride on other members' efforts, but for a group of larger population such punishment tends to be difficult to enforce.

- (4) Suppose that group V cannot engage in lobbying and only M and A offer their conditional promises to the government. In this case no SPNE exists with the government choosing Y ,

but the government chooses X in every SPNE. Answer the minimum amount of bribes that the government receives in the SPNEs.

The conditions for a SPNE with X being chosen is now as follows:

$$\begin{aligned}c_M &= c_A \\100 - c_M &\geq 60 \\70 &\geq 100 - c_A,\end{aligned}$$

which are reduced into $40 \geq c_M \geq 30$. Therefore, the minimum amount is 30.

- (5) Suppose that instead of engaging in lobbying, group V uses a retrospective voting strategy, and the government will be reelected only if it chooses X . What is the minimum amount of the discounted reelection rent (which was denoted by δR in the lecture) when the government is induced to choose X in every SPNE?

This question has a mistake! We have to rewrite X into Y in the above sentences. I apologize for this and I will give the point to everyone.

After changing X into Y , the answer is like this. The conditions for a SPNE with Y being implemented are as follows:

$$\begin{aligned}c_M &= c_A + \delta R \\100 - c_M &\leq 60 \\70 &\leq 100 - c_A,\end{aligned}$$

from which we have $40 - \delta R \leq c_A \leq 30$. Such a c_A exists if and only if $\delta R \geq 10$. Therefore, the minimum amount of the discounted reelection rent is 10.

- (6) Point out a limitation of voters' political influences based on their retrospective voting strategy (The answer need not be limited to the context of special interest politics).

A retrospective voting strategy works only if a majority of voters choose their voting behavior in a consistent fashion with it. Without any communication among them, it is hard to believe that such coordinated voting behavior is possible.