UNIVERSITY OF CALIFORNIA
DEPARTMENT OF ECONOMICS

Economics 202B
Spring 2007
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Problem Set 12
Due in lecture, Thursday, April 26

1. Consider the simplified version of Angeletos's model presented in lecture. Suppose, however, that if there is a war, the path of G is $G_1 = \bar{G}$, $G_2 = A\bar{G}$ ($A \geq 0$). Redo the analyses of optimal policy both in the case where the government can issue state-contingent debt and in the case where it can only issue noncontingent one-period and two-period debt. For $0 \leq A < 1$, how do increases in A affect the B_1 and B_2 needed to implement optimal policy? Explain intuitively. What happens when $A = 1$? Why? What happens when $A > 1$? Why?

2. Romer, Problem 11.8.

3. This problem asks you to consider the Tabellini-Alesina model with extreme preferences, with two variations: utility is quadratic, and, in part (b), the preferences of the period-2 policymaker are known before the period-1 policymaker chooses D.

Specifically:

-- Preferences are extreme -- that is, the only values of α (the weight in the utility function on military spending) in the population are 0 and 1. Individuals with $\alpha = 1$ are "hawks"; individuals with $\alpha = 0$ are "doves."

-- The period-1 policymaker is a hawk.

-- Utility is quadratic. Specifically, each hawk's objective function is $E[(M_1 - (a/2)M_1^2) + (M_2 - (a/2)M_2^2)]$, and each dove's objective function is $E[(N_1 - (a/2)N_1^2) + (N_2 - (a/2)N_2^2)]$. Assume $a > 0$ and $1 - 2aW > 0$.

-- As in the Tabellini-Alesina model:

-- The period-1 policymaker chooses M_1, N_1, and D subject to $M_1 + N_1 = W + D$, $M_1 \geq 0$, $N_1 \geq 0$, and $-W \leq D \leq W$.

-- The period-2 policymaker chooses M_2 and N_2 subject to $M_2 + N_2 = W - D$, $M_2 \geq 0$, $N_2 \geq 0$.

a. Suppose the probability that the period-2 policymaker is a hawk is π (where $0 \leq \pi \leq 1$).

Find the value of D chosen by the period-1 policymaker as a function of π, W, and a.

b. Suppose that, in contrast to the usual Tabellini-Alesina model, the preferences of the period-2 policymaker are known before the period-1 policymaker chooses D. (As in the basic model, however, the period-2 policymaker cannot make any commitments about his or her choice of M_2 and N_2.) With probability π (where π is the same as in part (a)), the period-2 policymaker is known to be a hawk; with probability $1 - \pi$, he or she is known to be a dove.

i. What value of D will the period-1 policymaker choose if it is known that the period-2 policymaker will be a hawk?

ii. What value of D will the period-1 policymaker choose if it is known that the period-2 policymaker will be a dove?

iii. Are hawks better off, worse off, or equally well off (or is it not possible to tell) in case (b) than in case (a)? Explain. (Hint: use logic, not math.)

iv. Are doves better off, worse off, or equally well off (or is it not possible to tell) in case (b) than in case (a)? Explain.

(OVER)

EXTRA PROBLEMS (NOT TO BE HANDED IN/ONLY SKETCHES OF ANSWERS WILL BE PROVIDED)

4. Consider the Barro tax-smoothing model as presented in the reading and in lecture. The distortion costs at time t, C(t), are given by $Y(t)f(T(t)/Y(t))$, where $f(0) = 0$, $f'(0) = 0$, $f''(\bullet) > 0$. Suppose that r and G are constant, that the level of government debt outstanding at time 0 is zero, and that initially Y(t) is expected to remain constant at some level, which we will denote Y_0, forever.

At time 0, however, there is news: From time t_1 to time t_2 (where $t_2 > t_1 > 0$), Y(t) will equal Y', where $0 < Y' < Y_0$.

Describe qualitatively the paths of taxes and government debt outstanding after time 0, and explain your answer.

5. Romer, Problem 11.9.

6. Romer, Problem 11.10.