UNIVERSITY OF CALIFORNIA
DEPARTMENT OF ECONOMICS

Economics 202B
Spring 2007
C. Jones/D. Romer

Problem Set 11
Due in lecture, Thursday, April 19

1. Romer, Problem 11.1.

2. Consider the Barro tax-smoothing model. Suppose that output and the real interest rate are constant. Initially government purchases are constant at some level G_0 and are expected to remain at that level forever. As a result, taxes are constant at G_0 and there is no government debt. At some time, which we will normalize to time 0, there is news: there will be a "bulge" in government purchases. Specifically, G will rise linearly from G_0 to G_1 ($G_1 > G_0$) from $t = 0$ to $t = \tau$, and then decline linearly from G_1 to G_0 from $t = \tau$ to $t = 2\tau$. Describe qualitatively the paths of taxes and government debt outstanding after time 0, and explain your answer.

3. Consider the Barro tax-smoothing model. Distortion costs are quadratic, and output and the real interest rate are constant. Initially government purchases are constant at some level G_0 and are expected to remain at that level forever. As a result, taxes are constant at G_0 and there is no government debt. In some period, which we will normalize to period 0, there is news: there is a fifty percent chance that in period 1 only, government purchases will be $G_1 > G_0$. Then in period 1, it becomes known whether purchases that period are G_1 or G_0. Thereafter (regardless of what happens in period 1), government purchases are again constant at G_0 forever.

a. Describe qualitatively what happens to taxes and the government budget surplus in period 0.

b. Describe qualitatively what happens to taxes in period 1 and subsequent periods if the realized value of government purchases in period 1 is G_1. Do the same for the case when the realized value of government purchases in period 1 is G_0.

c. Suppose that instead of being quadratic, the distortion costs, C(T), satisfy $C''(\bullet) > 0$ and $C'''(\bullet) > 0$. Are taxes in period 0 more, less, or the same as they are in the case where $C(\bullet)$ is quadratic?

4. Romer, Problem 11.4.

(OVER)

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

5. In an economy where the real interest rate, r, is constant and strictly positive, the following policy does NOT satisfy the government budget constraint:

A. Initial debt strictly positive, primary deficit constant and equal to zero.

B. Initial debt strictly positive, actual deficit constant and positive.

C. Initial debt, D, strictly negative, primary deficit constant, positive, and equal to -rD.

D. (A) and (B).

E. (A) and (C).

F. (B) and (C).

G. (A), (B), and (C).

6. The Barro tax-smoothing model predicts that in response to news that government purchases as a share of GDP have unexpectedly and permanently fallen by some amount:

A. Taxes as a share of GDP will fall immediately by the amount of the fall in purchases as a share of GDP.

B. Taxes as a share of GDP will fall gradually by the amount of the fall in purchases as a share of GDP.

C. Taxes as a share of GDP will fall gradually by an amount larger than the fall in purchases as a share of GDP.

D. Taxes as a share of GDP will fall gradually by an amount smaller than the fall in purchases as a share of GDP.

7. Romer, Problem 11.3.

8. Derive expressions for the paths of taxes and government spending outstanding after time 0 for Problem 2.

9. Romer, Problem 11.5.

10. According to the Ricardian equivalence hypothesis, a bond-financed tax cut:

A. Will not affect households' consumption or saving.

B. Will not affect the consumption of households' alive today, but will affect the consumption of future generations.

C. Will cause current consumption to fall as households accumulate the resources they need to pay off the debt issued to finance the tax cut.

D. None of the above.