Econ 522 Macroeconomics: Problem Set 10

Due: 11:59 pm, 4.27.2025
Reference: Chapter 10

1 Ricardian Equivalence Failure

Assume a consumer who has current-period income $y = 100$ and future-period income $y' = 150$ and faces current lump sum tax $t = 40$ and future lump sum tax $t' = 50$, respectively. A real interest rate is $r = 0$. The consumer wants to consume equal amounts in both periods for perfect consumption smoothing, i.e, $c = c'$, but there is a borrowing restriction in that a consumer cannot borrow at all, i.e., $s \geq 0$. Therefore, she cannot achieve perfect consumption smoothing.

1. Compute the present value of lifetime net income after paying taxes over periods.

2. Calculate her ideal current-period and future-period consumption and optimal saving, (c, c', s), if she is allowed to borrow. (Hint: use the solution from part 4 in PS8)

3. Calculate her actual sub-optimal current-period and future-period consumption and saving, (c, c', s), given that she cannot borrow at all. (Hint: determine what the second best s is and then compute c and c' from each period budget constraint)

4. Represent the actual consumption profile on the consumption plan (c for x-axis and c' for y-axis) with an initial endowment on the budget line together.

5. Suppose that everything remains unchanged, except that now $t = 20$ and $t' = 70$. Compute the effects on actual current and future consumption and saving, and show any changes in the previous diagram.

6. Compare the consumption profiles from parts 3 and 5. What do you observe? What implications can you drive from this result about the effect of stimulus fiscal policy like a tax cut or stimulus transfer by the treasury? Characterize the group of people who will experience this effect.