14.05 Intermediate Macroeconomics
Pset 5

Due May 3rd

Problem 1

This is a non-math question about Ricardian equivalence. Imagine a two period economy with two types of agents: lenders and borrowers. Both have the same preferences and like to smooth consumption, but they differ in their income endowment of a perishable good. Lenders have a lot of income in the first period, and very little in the second. Borrowers have very little income in the first period but a lot in the second. There is a government who is running a balanced budget (taxing the same amount from both types).

(a) If they can trade a riskless bond, who would lend to whom?

(b) Now assume agents cannot borrow (can consume at most their after tax income). For whom is this constraint binding? Do you expect the interest rate to be higher or lower?

The government now decides to lower taxes in the first period by Δ (keeping total expenditures fixed)

(c) For a given interest rate, how does this affect savings for lenders? and for borrowers? and aggregate savings (including the government)?

(d) What do you expect will happen to the equilibrium interest rate?

Problem 2

Suppose that households change their preferences so that they wisk to work and consume more in each year.

(a) Show graphically the effects of this change on the labor market. What happens to labor input L, and the real wage, $\frac{w}{P}$?

(b) Show graphically the effects of this change on the market for capital services. What happens to the real rental price, $\frac{R}{P}$? What happens to the interest rate, i?

(c) What happens to consumption, C, and investment, I? What happens over time to the stock of capital, K?

Problem 3

Assume a one-time decrease in the capital stock, K, possibly caused by a natural disaster or war. Assume the population does not change.

(a) Show graphically the effects of this change on the market for capital services. What happens to the real rental price, $\frac{R}{P}$? What happens to the interest rate, i?

(b) Show graphically the effects of this change on the labor market. What happens to labor input L, and the real wage, $\frac{w}{P}$?

(c) What happens to consumption, C, and investment, I? What happens over time to the stock of capital, K?

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