

## 5. The Basic Market clearing Model (Ch 5)

### **Problem 5.1.** (Barro 5.16: Temporary versus Permanent Changes of the Production Function)

Consider a parallel downward shift of the production function in Figure 5.3. p. 181. This type of change does not affect the schedule for labor's marginal product. Suppose first that this change is permanent.

- a) We dealt with this type of disturbance for an isolated individual, Robinson Crusoe, in chapter 2. We found that Crusoe reduced output and consumption but raised work effort. How do these results compare with those that we obtained in the present chapter, which includes markets for commodities and credit? Think of the typical or representative household: does that household's responses of output, consumption, and work effort differ from those of Robinson Crusoe?
- b) Suppose now that the change of production function is temporary. Compare again Robinson Crusoe's responses of output, consumption and work effort with those of the typical household in the model from the present chapter.
- c) For Robinson Crusoe, how do the responses of output, consumption and work effort depend on whether the improvement to the production function is temporary or permanent?
- d) Put together the results from part a, b and c. They tell us how to compare temporary and permanent changes in the production function for the model in the present chapter, which includes markets for commodities and credit. How do the responses of output, consumption and work effort for the typical household depend on whether the change in the production function is permanent or temporary.
- e) Repeat the analysis for part a to d with a proportional downward shift in the production function.

### **Problem 5.2.** (Barro. 5.15: A Currency Reform)

Suppose that the Government replaces the existing monetary unit with a new one. For example, the United States might shift from the old Dollar to the Reagan Dollar, which equals 10 old dollars. People can exchange their old currency for the new one at a ratio of 10 to 1. Also, any contracts that were written in terms of old dollars are converted at the ratio of 10 to 1 into Reagan dollars.

- a) What happens to the price level and the interest rate.
- b) What happens to the quantities of output, consumption and work effort?
- c) Do the result exhibit the neutrality of money?

### **Problem 5.3.**

Show that Walras' law holds for the credit-market economy that we already discussed. That is, use the consumer's budget constraints in the two period model and the market-clearing conditions for goods to derive the market-clearing condition for bonds in equation, i.e.

$$N \cdot b_1^* = 0 \text{ , where } N \text{ is the number of households and } b \text{ is bonds.}$$