

Chapters 9 and 10: GE model
continued
(pp 372-439)

March 22, 2017

Homework for March 27

- Finish reading Chapter 10
- Explain two ways to derive the formula for capital in chapter 10.
 - The book starts with AS-AD and then solves for capital.
 - It also derives the result starting with the two marginal conditions.
- Quiz 18 will include 3 questions from the first 17 quizzes. You will complete it in class.

Quiz 18

1. (3) Set up and solve the baseline model (centralized) of Chapter 2. Solve for l , and c , using general parameter values for T , A_G , α and γ . Fix the capital stock at $k = 1$.
 - a. Define the MRS_{xc} in general terms.
 - b. Show the particular MRS_{xc} for this model.
 - c. Show that the labor supply is independent of the level of technology (A_G)
 - d. What happens if the allotment of time available for work and leisure increases?

Quiz 18

2. (9) Which tax delivers greater revenue for the government, a 20% tax on labor income or a 20% tax on consumption goods. Explain why.
3. (17) Set up and solve the baseline centralized model of chapter 5. Solve using general parameter values for y_0 , A_G , β and γ . Fix the labor supply at $l = 1$.
 - a. What happens to c_1 , u , k_1 , and c_0 when we double A_G in the baseline model? How do you explain the big differential between c_0 and c_1 ?

Review Questions

1. What do some economists mean when they say that there is no difference between microeconomics and macroeconomics, there is only economics?
2. What is consumption smoothing?
3. See Quiz 18
4. What is the internal versus external margin of labor supply?
5. What happens to utility, output, and labor if the household has more total time available to be used for work or play? Explain each.

Review Questions

6. Why is the inverse of wage the price of output in the aggregate demand, aggregate supply graph? Why is it not the norm in the conventional undergraduate textbook?
7. How does a tax on consumption goods affect the equilibrium for consumption, labor, and utility.
8. How does a tax on labor income affect the equilibrium for consumption, labor, and utility.
9. See Quiz 18
10. State one condition under which the revenue both taxes will be equal.

Review Questions

11. What constraints are changed in order to solve a 2-agent model with trade?
12. In theory, who should benefit more following a bilateral trade agreement between the United States and Mexico? Why?
13. How would you modify the utility function to solve problems involving saving and investment?
 - a. Set up the two period model with capital and fixed labor.
 - b. What is the role of β in the utility function?
 - c. Calculate the first order conditions needed to compute the equilibrium solution to this model.
 - d. Write the solution for the k_1 in terms of the model parameters.

Review Questions

14. Set up the utility function to compute the decentralized solution.

- a. What is the combined budget constraint for the consumer?
- b. Express this constraint in a way that shows that the present value of income = present value of expenditures.
- c. Derive the supply and demand curves for capital in this simple two period model with capital.

15. Why do we rebate tax revenue back to the representative consumer in our models?

- a. Why do we do it as a “lump sum” payment?
- b. How would it change the analysis if we did not rebate the tax?
- c. How would it change the analysis if we did not treat it as a lump sum tax?

Review Questions

16. What is a small open economy? Set up the model of the small open endowment economy of Chapter 7.
17. See Quiz 18
18. Set up the centralized model of Chapter 8. Write down the Bellman equation and the four constraints
 - a) Write down the modified Bellman equation with constraints substituted in for consumption and leisure.
 - b) Write down the first order conditions and the envelope condition. Substitute in the envelope condition to get the two FOCs that represent the intertemporal and intratemporal margins.

Review Questions

19. Set up the decentralized model of Chapter 8.

- a) Write down the Bellman equation and the four constraints
- b) Write down the modified Bellman equation with constraints substituted in for consumption demand and leisure (labor supply).

20. Write down the first order conditions and the envelope condition.

- a. Substitute in the envelope condition to get the two FOCs that represent the intertemporal and intratemporal margins.
- b. Derive the consumption demand and consumption supply equations.

Review Questions

21. Show how AD-AS curves change when technology (AG) rises.
22. Show how the Factor Market equilibrium changes when technology rises.
23. Show how AD-AS curves change when the time endowment increases.
24. Show how the Factor Market equilibrium changes when the time endowment increases.

Review Questions

25. Set up and solve the GE recursive model with a labor tax. Write down the Bellman equation, the utility function, the four constraints.
- a. Write down the modified Bellman equation for the decentralized solution.
 - b. Take first order conditions, the envelope condition and derive the equations for aggregate demand and aggregate supply.

Midterm Exam

- Here at 12 noon on Wednesday, March 29. You will have 2 hours to complete the test.
- Homework for April 3, Read Chapter 11
- Replicate Figures 11.1, 11.2, and 11.3