

Exercise session #2 - Consumption; Money and inflation

Problem 1 - Effect of increase in interest rate for net borrower

In the lecture, we have used Fisher model to explain the effect of an increase in the interest rate for the consumer who was net saver. Suppose that consumer is a net borrower. How does this alter the analysis. What can you tell about the differences in the income and substitution effect between the two types of consumers?

Problem 2

Gurgen and Marek both obey the two-period Fisher model of consumption. Gurgen earns \$100 in the first period and \$100 in the second period. Marek earns nothing in the first period and \$ 210 in the second period. Both of them borrow or lend at interest rate r .

- You observe both Gurgen and Marek consuming \$100 in the first period and \$100 in the second period. What is the interest rate r ?
- Suppose the interest rate increases. What will happen to Gurgen's consumption in the first period? Is Gurgen better off or worse off then before the interest rate rise?
- What will happen to Marek's consumption in the first period when the interest rate increases? Is Marek better off or worse off then before the interest rate increase?

Problem 3

We have seen the analysis for the case when consumer can save and borrow at the same interest rate r . Consider now that consumer can save at rate r_s and borrow at rate r_b where $r_s < r_b$.

- What is the consumer's budget constraint in the case that he consumes less than his income in period one?
- What is the consumer's budget constraint in the case that he consumes more than his income in period one?
- Graph the two budget constraints and find all the combinations of first-period and second-period consumption the consumer can choose.

- Add consumer's indifference curves. Show three possible outcomes - one in which the consumer saves, one in which the consumer borrows and one in which he neither saves or borrows.
- What determines first period consumption in each of the three cases?

Money demand models - micro level: in general macro level

$$\left(\frac{M}{P}\right)^D = L(Y, r + \pi^e)$$

How to model demand for money on micro level?

2 out of 3 functions of money create the demand:

1. **Portfolio theories** of money demand: money as store of value
 - people choose to hold money as a part of their portfolio of assets (money offers safe return compared to bonds or stocks)
$$\left(\frac{M}{P}\right)^D = L(r_s, r_b, \pi^e, W)$$

where r_s is expected return on stock, r_b is expected return on bond, π^e is expected inflation and W is stock of wealth

 - basic equation = simplification, as $Y \sim W$ and $i = r_b + \pi^e$
 - relevance depends on measure of money analyzed: no useful for M1 - low or no return, applicable on M2 or M3
2. **Transaction theories** of money demand: money as medium of exchange
 - people hold money in order to be able to make purchases

Baumol - Tobin model of cash management:

- benefit of holding money - convenience
- cost of holding money - foregone interest on deposits
- *formal derivation on exercise session*
- microeconomic justification for $\left(\frac{M}{P}\right)^D = L(Y, i)$

Questions for review:

Lecture 3: Consumption:

- What were Keynes's three conjectures about the consumption function?
- Write down the formal notation of consumption function that satisfies all three Keynes's conjectures.
- Explain differences among cross-section, time series and panel data (give an example of each).
- Describe empirical evidence that was consistent with Keynes's conjectures.
- Describe empirical evidence that was inconsistent with Keynes's conjectures.
- How would you define intratemporal and intertemporal budget constraint?
- What is the effect of change in income within the framework of Fisher model?
- What is the effect of change in interest rate within the framework of Fisher model?
- Explain income effect.
- Explain substitution effect.
- How does life-cycle model explain contradictory evidence concerning consumption behavior?
- Explain difference between permanent and transitory income. Which one determines the level of consumption and why?
- How does permanent-income model explain contradictory evidence concerning consumption behavior?
- What is random walk (give definition or simple explanation)?
- Why are changes in consumption unpredictable if consumers act according to permanent income hypothesis and have rational expectations?
- Give an example in which somebody exhibits time-inconsistent preferences (other than on the lecture).
- Summarize determinants of the current level of consumption.

Lecture 4: Money and inflation

- Define money.
- What are the three main functions of money?
- What are the two basic types of money?
- How did money evolved in the historic context (very short :-)?

- Who regulates money supply in the Czech republic?
- Define monetary aggregate $M1$. Would you say it satisfies all functions of money?
- Define monetary aggregate $M3$. Would you say it satisfies all functions of money?
- What are the reserves? What is their role in the regulation of money supply in the economy?
- How can banks create money?
- Based on the simple model presented at lecture, what are the main determinants of money supply in the economy (+ who are the agents)?
- What is monetary base?
- State three basic instruments of monetary policy. Can you state some more?
- Write down quantity equation and explain what it represents.
- What does the assumption of constant income velocity of money imply?
- What is Fisher effect?
- List all the costs of inflation and rank them according to their severity (in your opinion).
- Who pays the taxation tax?
- Explain the role of monetary and fiscal policy in causing and ending hyperinflation.
- What is seignorage?
- Define real variables and nominal variables, give example.
- Explain the concept of neutrality of money.