

Seminar in macroeconomics – Consumption, 13th week

1. ! *Keynesian consumption function.* Dusan has a net income of CZK 15,000 and is not able to save anything from it. If he gets promoted at work, he would have an income of CZK 20,000. From this income he is able to save CZK 3,000. Calculate Dusan's marginal and average propensity to consume, write and draw his consumption function.
2. ☺ Assume that an individual saves in the first period. Use the model of intertemporal choice to show the effect of a decline in interest rates. Mark the income and substitution effects.
3. ! *Intertemporal choice.* Suppose Joseph earns CZK 10,000 in the first period and CZK 20,000 in the second period.
 - a) If Josef consumes CZK 14,000 in the first period and CZK 15,000 in the second period, what is the interest rate?
 - b) If the consumption of Josef changed to CZK 15,000 in the first year and to CZK 14,000 in the second period, what is the new interest rate?
 - c) Explain income and substitution effects using this example, and determine which effect dominates after the change in interest rate changes between points (a) and (b).
4. ☺ Jack and Jill both obey the two-period Fisher model of consumption. Jack earns \$100 in the first period and \$100 in the second period. Jill earns nothing in the first period and \$210 in the second period. Both of them can borrow or lend at the interest rate r .
 - a) You observe both Jack and Jill consuming \$100 in the first period and \$100 in the second period. What is the interest rate r ?
 - b) Suppose the interest rate increases. What will happen to Jack's consumption in the first period? Is Jack better off or worse off than before the interest rate rise?
 - c) What will happen to Jill's consumption in the first period when the interest rate increases? Is Jill better off or worse off than before the interest rate increase?
5. ! The textbook analyzes Fisher's model for the case in which the consumer can save or borrow at an interest rate of r and for the case in which the consumer can save at this rate but cannot borrow at all. Consider now the intermediate case in which the consumer can save at rate r_s and borrow at rate r_b , where $r_b > r_s$.
 - a) What is the consumer's budget constraint in the case in which he consumes less than his income in period one?
 - b) What is the consumer's budget constraint in the case in which he consumes more than his income in period one?
 - c) Graph the two budget constraints and shade the area that represents the combination of first-period and second-period consumption the consumer can choose?
 - d) Now add to your graph the consumer's indifference curves. Show three possible outcomes: one in which the consumer saves, one in which he borrows, and one in which he neither saves nor borrows.
 - e) What determines first-period consumption in each of the three cases?
6. ☺ Use Fisher's model to explain whether borrowing constraints increase or decrease the potency of fiscal policy to influence aggregate demand in each of the following two cases.
 - a) A temporary tax cut.
 - b) An announced future tax cut.

7. ☺ Explain why the changes in consumption are unpredictable if individuals behave according to the *permanent-income hypothesis* and have *rational expectations*.

8. ☺ In the discussion of the life-cycle hypothesis in the textbook, income is assumed to be constant during the period before retirement. For most people, however, income grows over their lifetimes. How does this growth in income influence the lifetime pattern of consumption and wealth accumulation shown in Figure 17-12 in Mankiw under the following condition:

- Consumers can borrow, so their wealth can be negative.
- Consumers face borrowing constraints that prevent their wealth from falling below zero.

Do you consider case (a) or case (b) to be more realistic? Why?

9. ☺ Demographers predict that the proportion of people aged over 60 in the population increases in the next twenty years. Based on the life-cycle hypothesis, what will be the impact of this development on the aggregate saving rate?

10. ! *Life-cycle hypothesis*. Libor is 40 years old. He expects that thanks to its healthy lifestyle he will work for another 40 years and live for another 10 years after his retirement. How much does his consumption in the current year change as a result of an annual reduction in income tax of CZK 100 if

- the change is permanent and immediate.
- the tax reduction applies only to one year.
- the tax cut is permanent, but takes effect next year.

11. ☺ *Life-cycle hypothesis+permanent-income hypothesis*. Mr. Beaver expects to work for 25 years and then to receive a pension for 15 years. His salary is CZK 35,000 per month and expects net income of CZK 12,000 per month. Mr. Beaver owns a home valued at CZK 4 million, and has CZK 1,5 million mortgage.

- What is the consumption of Mr. Beaver in the base year?
- Mr. Beaver finds out that the owner of the house is actually his wife, whom he divorced, however, he must repay the mortgage. What is his consumption now?
- As in the case of a), but thanks to the "successful" government reforms the market value of his house increases by 50% and the expected value of his retirement drops by 50%.

12. ☺ Assume that the *permanent income* of Mr. Raven is calculated as an average of his income in the next 5 years ($Y_t^P = (Y_{t+1} + Y_{t+2} + Y_{t+3} + Y_{t+4} + Y_{t+5})/5$). His consumption is given by the equation $C = 0,9Y^P$.

- What will the permanent income (Y_t^P) of Mr. Raven be this year, if he earns CZK 200,000 net per annum in the next five years?
- In six years, Mr. Raven will be promoted and will earn CZK 300,000. What will his permanent income be in the next year (Y_{t+1}^P)?
- What will his consumption be this year and next year?
- Plot the permanent income Y_t^P as a function of time.