

ECO 3206: Assignment 1

Due Date: 5th March (before 11 PM)

- Assignments have to be submitted with student names and IDs clearly mentioned on the answer sheet.
- All answer sheets have to be submitted/uploaded to the Moodle page before the deadline.
- No late assignments will be accepted.
- Total Points- 20 + 10 (essay) = 30

Question 1

(10 pts) Consider a consumer with utility function over two periods as:

$$U(c_1, c_2) = \ln(c_1) + \beta \ln(c_2)$$

Consumer discounts future such that $\beta = 1$ and the interest rate given to him is $r = 5$. The consumer earns \$10,000 in period 1 and \$20,000 in period 2. Besides, also starting their life with wealth, $W = \$5,000$ that can be used in either period but has to be exhausted by end of period 2. Please answer the following:

1. How much does the consumer consume optimally in period 1 and period 2? (4 pts)
2. By how much does consumption today rise if current labor income increases by \$10,000? (2 pt)
3. By how much does consumption today rise if future labor income rises by \$10,000? Why does your answer here differ from that in part (b)? (2 pts)
4. If the interest rate rises to 10 percent, what is the maximum possible consumption in period 1 and period 2? (2 pts)

Question 2

(6 pts) There are 2 agents in the economy: X and Y. For X, we know: $Y_1 = 10$ and $Y_2 = 10$ and for Y, we know: $Y_1 = 20$ and $Y_2 = 20$. The interest rate in the economy is, $r = 4\%$. Answer the following:

1. Calculate the maximum consumption X and Y can make in period 1. (2 pts)
2. Now suppose, Y can save and borrow at the prevailing interest rate, $r = 4$ but X can save and get interest $r = 4$ but if X borrows, the interest rate levied is $r = 6$. Please draw the budget line for X and Y. Clearly show the intercept points and slope. (4 pts)

Question 3

(4 pts) Using the neoclassical model of investment learnt in class, please explain the impact of each of the following on the rental price of capital, the cost of capital, and investment.

- Anti-inflationary monetary policy raises the real interest rate.
- Immigration of foreign workers increases the size of the labor force.
- An earthquake destroys part of the capital stock.
- There is new improvement in technology.

Question 4

(5 pts) Consider an economy that exists for two periods: period 1, and period 2. In each period, the government must satisfy the budget constraint $B_{t+1} = B_t(1 + r) + G_t - T_t$. Answer:

1. Write this budget constraint for each period. (2 pts)
2. Derive the intertemporal budget constraint for the two-period economy. Interpret this equation. (3 pts)

Essay (10 pts)

In class we saw how important data is in trying to understand consumption. Additionally, we saw that data can tell us how consumption varies for the same person/household over time and also across individuals in a given time. Therefore, the prompt for the essay would be to look at data patterns for consumption as observed

by researchers and summarize it in your own words. The essential reading here would be Section 1 and 2 of the consumption chapter by Orazio Attanasio (paper can be found on Moodle).

You can then take it forward by looking at either consumption differences across groups by reading ('Conspicuous Consumption and Race' by Charles, Hurst, and Roussanov) or consumption differences across generations by reading ('The Intergenerational Correlation of Consumption Expenditures' by Charles, Danziger, Li, and Schoeni).

Please make sure your essay is less than 1000 words and has to be submitted by **9th March (11 PM) by email to ronit.mukherji@ashoka.edu.in. Late submissions will not be graded!**