Problem 1

Kate is not sure how many hours she should spend at work and we have to help her. Her total available time is 24h. She has no other source of income but salary. She is a lawyer, and a current wage rate for lawyers (per hour) is \( w = $100 \). She only consumes bananas that cost \( p_c = $5 \) per pound.

a) What is her real wage rate (wage rate in terms of bananas) ?

b) Show her budget set on the graph.

Suppose her utility function is:

\[
U(C, R) = R \times C
\]

where \( R \) is leisure (or relaxation time) and \( C \) is consumption of bananas.

c) Find her optimal time spent at work, the relaxation time and consumption of bananas.

d) How your answer in c) would change if her wage rate was \( w = $200 \). How would you explain the change (or possibly no change) in her labor supply?

Problem 2 (Intertemporal Choice)

Gerald is a CEO in Brainies Consulting Inc. His income in the first year is \( \omega_1 = $200 \) and in the second year \( \omega_2 = $200 \). Assume that the interest rate is \( r = 100\% \): (His time horizon is limited to these two years.)

a) Find \( PV \) and \( FV \) of Gerald’s income.

b) Show on the graph \((C_1; C_2)\) Gerald’s budget set. Mark \( PV \), \( FV \) and the slope of his budget line.

c) Explain what borrowing/lending strategy gives Gerald each of the two “extreme” consumption points. (how much does he borrow/lend in the first period, how much does he pay back/ receive in the second period?)

d) Suppose his utility function is

\[
U(C_1; C_2) = \ln C_1 + \frac{1}{1 + \delta} \ln C_2
\]

Find analytically Gerald’s optimal choice and show it on the graph. Does the optimal consumption involve saving or borrowing? Find optimal savings \( S \)

Problem 3 (Intertemporal Choice)

The preferences of a manager and a sportsman are given by

\[
U(C_1; C_2) = \ln C_1 + \frac{1}{1 + \delta} \ln C_2
\]
Suppose \( r = \delta = 100\% \).

a) Give economic interpretation to coefficient \( \delta \).

b) Derive the optimal consumption plan of a manager \((C_1, C_2)\) if his income in two periods is given by \( \omega = (0, 3000) \). Find optimal level of savings \( S \) in the first period.

c) Derive optimal consumption plan of a sportsman, \((C_1, C_2)\) if his income in two periods is given by \( \omega = (1500, 0) \). Find optimal level of savings in the first period.

d) Are the manager and the sportsman smoothing their consumption profiles?

e) Show, using one of the secrets of happiness, that the optimal consumption of the manager is decreasing over time when \( r < \delta \).
Questionnaire Econ 301

This is an anonymous questionnaire. Answer the questions but do not sign it. The questionnaire will be collected on Thursday together with PS5

Which year are you in and what is your major?

I. Problem sets:
1. How much time (on average) do you spend solving PS?
2. Are PS: super easy, easy, OK, difficult, very difficult.
3. Are PS helpful in understanding the material?
4. How difficult math do you need to solve problems? super easy, easy, OK, difficult, very difficult.

II. Class
1. Do you find solving problem in class useful?
2. Do you prefer more intuitive or formal exposition of the material?
3. How about the pace of the course: too slow, slow, OK, fast, too fast.
4. What fraction of the theory presented in the class can you follow? 20%, 40%, 60%, 80%, 100%
5. How would you improve the course?

III. Midterm
1. Do you think the midterm was fair?
2. The midterm’s difficulty level: Was it super easy, easy, OK, difficult, very difficult?
3. The contents: where you surprised by any of the questions?
4. Length: Was the midterm very short, short, OK, long, too long?

IV. TA sections
1. Name of your TA
2. Do you find them helpful in understanding the material?
3. Do you find them helpful in solving your assignments?