

Midterm Exam
Undergraduate Program in Economics

Course : Microeconomics 2 (Advanced Microeconomics)
 Instructor : Teguh Dartanto
 Time : 180 Minutes
 Type : Open Note (A4 1 piece both sides)

There are four problem sets (1 set for AACSB (Compulsory), 2 sets of compulsory, 1 set of bonus). The total point of four problem sets is 115 points. Allocate your time wisely.

1. AACSB Problem set [35 point] if the consumer preference on the motorcycle transportation (Go Jek, Grab Bike) = (X_1, X_2) can be represented as the following utility function:

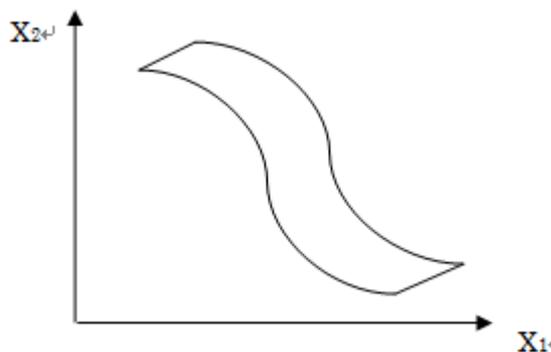
$$U(X_1, X_2) = (X_1 + 1)(X_2 + 1)$$

and a consumer faces a budget constraint as $P_1X_1 + P_2X_2 = W$, where P_1 is price of good-1 and P_2 is price of good-2 while W is income. then answer the following questions!

- a. Find the walrasian/marashallian demand function for both goods! (7)
- b. Find the Indirect Utility Function! (6)
- c. Show using example that the indirect utility function is homogenous of degree zero in p and y ! (6)
- d. The Go Jek's price is $P_1 = 10,000$; the Grab Bike's price is $P_2 = 10,000$; and the budget allocation per-month is $W = 200,000$. The competition between Go Jek and Grab Bike is very hard to increase the market share. For winning the competition, Go Jek is launching a campaign of 5,000 for all destinations. Thus, the Go Jek's price decreases from 10,000 to 5,000 ($p_1 = 10,000 \rightarrow p_1^1 = 5,000$), then find the substitution effect and income effect of **Go Jek**! Use both figure/graph and calculation!(16)

2. [35 point] Explain clearly and concisely the following concepts:

- a. Why are axioms of completeness and transitivity very important in the consumer theory? (5)
- b. What happen if the preference relation is not convex and not monotone? What are the implications of this type of preference? (5)
- c. Using the consumer theory, explain and analysis your current condition why you are either a still single (jomblo) or in relationship (having boyfriend or girls friend)! (5)
- d. If the preference relation is drawn as the following figure, what axioms that are not satisfied? (5)



- e. Explain using a revealed preference theory why your decision/your chosen consumption/your partner is the best condition? (5)

- f. If the utility function of a consumer is $U(X_1, X_2) = \min(2X_1, 4X_2)$, and a consumer faces a budget constraint $p_1x_1 + p_2x_2 = w$, where $p_1=2$, $p_2=2$, $w=20$. Find the optimal walrasian demand function! If there is an increase in the price of good-1 ($p_1=4$), then calculate of substitution effect and income effect of good-1! (10)

3. [35 point] if the consumer of the indirect utility function is the following:

$$V(P_1, P_2, W) = \frac{(2W - 4P_1 - P_2)^2}{8P_1P_2}$$

where P_1 is price of good-1 and P_2 is price of good-2 while W is income. Following the duality between the Utility Maximization Problem and the Expenditure Minimization Problem, answer the following question!

- Find the Walrasian Demand Function! (9)
- Find the Expenditure Function! (6)
- Find the Hicksian Demand Function! (6)
- Find the Original Utility Function! (8)
- Show using example that 3.a (the Expenditure Function) is homogenous degree one in p ! (6)

4. [10 Point] additional problem set (a compulsory challenge for PhD student)

- If the consumer utility function is as below:

$$U(X_1, X_2) = \min(X_1X_2, X_1) + \min(X_1X_2, X_2)$$

$$s. t. P_1X_1 + P_2X_2 \leq W;$$

$$P_1 + P_2 = 2W$$

Given his/her wealth is W , and where P_1 is a price of good-1 and P_2 is a price of good-2, then answer the following question! Find a Walrasian/Marshallian demand function and also find the value of utility of this consumer!

!!Good Luck!!

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