



B.E. International Program
Faculty of Economics
Thammasat University



EE311 Microeconomics Theory, Semester 1/2019

Homework Assignment #3 | Due date: Friday 20 September 2019
(in-class submission, before lecture begins!)

Instruction:

- 1) Attempt all questions.
- 2) You may study and discuss in group but you have to write up your solutions independently and by handwriting only. Copying and/or Plagiarism is considered as a serious crime in academic arena and it will not be tolerated. If detected, all parties involved receive 'zero.'
- 3) If you have any questions, please feel free to email me at pwrasai@econ.tu.ac.th

Demand (CH 5)

1. Consider the case of two goods, X and Y. Draw the consumer choice diagrams AND show the Substitution and Income Effects, based on both Hicksian and Slutskian Approaches in the following scenarios. Thus, you need to draw two diagrams for each sub-question.

For students in Section 1 (046401), draw the cases where P_x falls; for students in Section 2 (046402), draw the cases where P_x rises.

- a) X is a normal good, Y is an inferior good.
 - b) X has the income elasticity of demand = 0, i.e. a change income change does not affect the demand for X, with no restriction on Y (Y can be normal or inferior). Derive a Hicksian demand curve and a Marshallian demand curve for this case.
 - c) X is an inferior good, with no restriction on Y (Y can be normal or inferior). Derive a Hicksian demand curve and a Marshallian demand curve for this case.
 - d) X is a Giffen good, with no restriction on Y (Y can be normal or inferior). Derive a Hicksian demand curve and a Marshallian demand curve for this case.
2. **(Standard U)** Consider the case of two goods, X and Y (composite good). Let $U(X, Y) = XY$. $P_y = \$1$, $P_x = \$4$, and $I = \$72$. Suppose P_x increases to $\$9$.

- a) Derive the demand function for X, as a function of P_x and I .
- b) From the demand function, is X a normal good or inferior good? Why?
- c) From the demand function, is X an ordinary good or Giffen good? Why?
- d) Find the numerical values of the SE and IE, using Hicksian Approach, and draw a consumer choice diagram to show the two effects.
- e) Find the numerical values of the SE and IE, using Slutskian Approach, and draw a consumer choice diagram to show the two effects.
- f) Under the Slutskian Approach, how is the consumer “compensated” so that his purchasing power is unchanged?
- g) Under the Hicksian Approach, find the compensating variation (CV) and equivalent variation (EV).
- h) Draw Hicksian and Marshallian demand curves.
- i) Using the Slutsky Equation, what can be said about the SE and IE in this case.

3. **(Quasi-Linear U)** Consider the case of two goods, X and Y (composite good). Let $U(X, Y) = 2\sqrt{X} + Y$. $P_y = \$1$, $P_x = \$0.2$, and $I = \$10$. Suppose P_x increases to $\$0.5$.

- a) Derive the demand function for X, as a function of P_x and I .
- b) From the demand function, is X a normal good or inferior good? Why?
- c) From the demand function, is X an ordinary good or Giffen good? Why?
- d) Find the numerical values of the SE and IE, using Hicksian Approach, and draw a consumer choice diagram to show the two effects.
- e) Find the numerical values of the SE and IE, using Slutskian Approach, and draw a consumer choice diagram to show the two effects.
- f) Under the Slutskian Approach, how is the consumer “compensated” so that his purchasing power is unchanged?
- g) Under the Hicksian Approach, find the compensating variation (CV) and equivalent variation (EV).
- h) Draw Hicksian and Marshallian demand curves.
- i) Using the Slutsky Equation, what can be said about the SE and IE in this case.

“ideas are easy execution is everything.” -John Doerr.