

## Discussion 6

### Important Topics

- Utility Maximization
- Substitution and Income Effects
- Demand Curve Derivation
- Engel Curve (and its derivation)

### Warm Up Problem

**Exercise 1** (*Consumer Theory Without Graphs*) Bucky is a utility maximizer. Bucky has \$80 to spend on Badger basketball tickets and economics textbooks. Given that the price of basketball tickets is \$10 and economics textbooks is \$10 in addition to the data in the table:

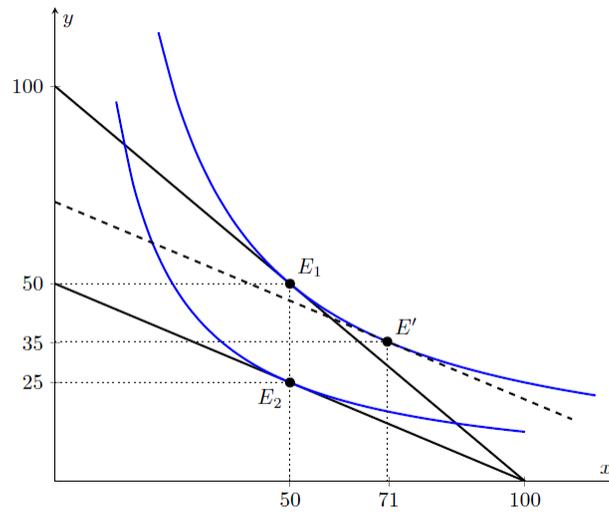
Quantity	TU tickets	MU tickets	MU/\$	TU econ texts	MU econ texts	MU/\$
1	25			40		
2	45			70		
3	60			95		
4	70			115		
5	75			130		
6	77			140		
7	76			145		

(Maybe you're surprised to learn that Bucky LOVES economics)

- How many tickets and textbooks should Bucky purchase?
- What is Bucky's total utility from the purchase?
- What is Bucky's saturation point for basketball tickets?

### Main Problems

**Exercise 2** Suppose 2Chainz has preferences between two chains ( $x$ ) and ( $y$ ), as represented in the graph below.



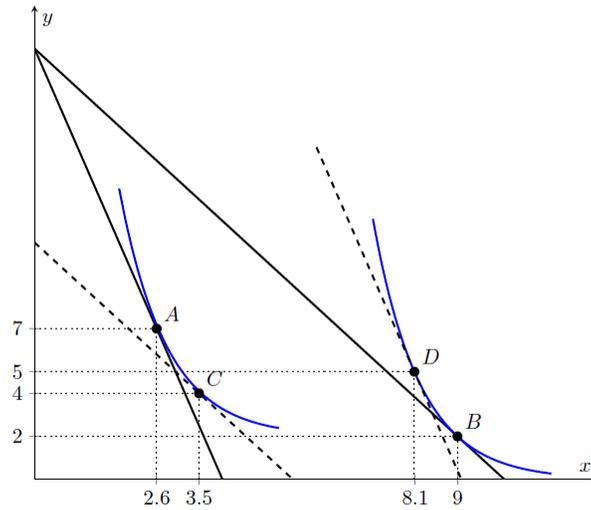
Point  $E_1$  is 2Chainz's initial consumption bundle. Then, the price of chain 'y' increases, causing 2Chainz to consume at point  $E_2$ . Point  $E'$  is the intermediate point between these two consumption bundles that is used to decompose the price (total) effect into income and substitution effects(it is therefore sometimes called a decomposition basket).

- Will the substitution effect for chain 'x' be positive or negative? What about the income effect? Which effect is dominant? Explain.
- Will the substitution effect for chain 'y' be positive or negative? What about the income effect? Which effect is dominant? Explain.
- Compute the magnitude of these effects by completing the table below.

	Substitution effect	Income effect	Price (total) effect
Pointwise	$E_1$ to $E'$	$E'$ to $E_2$	$E_1$ to $E_2$
Chain 'x'			
Chain 'y'			

- Assuming a linear demand curve for chain 'y', what will this demand curve look like?
- For 2Chainz is chain 'x' a normal or inferior good? What about chain 'y'? Justify your answer.

**Exercise 3** Professor Hansen has recently taken a liking to early 2000s hip hop music. She has preferences for Xzibit albums ( $x$ ), and Young Jeezy albums ( $y$ ), which are represented in the graph below. Use it to answer the following questions.



- (a) Are Xzibit albums ( $x$ ) a normal or inferior good for Prof. Hansen? What about Young Jeezy albums ( $y$ )? Explain.
- (b) Suppose Prof. Hansen is initially consuming at point A. Then the price of Xzibit albums ( $x$ ) decreases, causing her to consume at point B. To determine income and substitution effects, which intermediate point should be used to yield the correct result? C or D? Are both ok? (Hint: old utility, new prices.)
- (c) Suppose Prof. Hansen is initially consuming at point B. Then the price of Xzibit albums ( $x$ ) increases, causing her to consume at point A. To determine income and substitution effects in this case, which intermediate point should be used to yield the correct result? C or D? Are both ok? (Hint: old utility, new prices.)