

LECTURE 03: MARGINAL ANALYSIS

- I. The Marginal Revolution
 - a. The Diamond-Water Paradox
 - i. Water is critical for life and diamonds are not. Why is water so cheap and diamonds so dear?
 - b. The paradox was solved with the Marginal Revolution
 - i. Margin: the change in total something, each individual units of something
 - ii. Marginal analysis: decisions are made on the margin; a little bit more or a little bit less
 - iii. People put value on something based on marginal analysis
 - c. Diminishing Marginal Utility
 - i. *Utility*—economic lingo for satisfaction or benefit
 - ii. Each additional unit—each marginal change—generates less and less utility (we call this diminishing marginal utility).
 - iii. The first ice cream I eat is great, the second isn't as good as the first, the third is even less, the fourth starts tasting disgusting
 - d. Oranges example
 - i. Suppose I hand you 12 oranges. What do you use them for and in what order?

ORANGE	UTILITY	ORANGE	UTILITY	ORANGE	UTILITY
1 st	\$20	5 th	\$16	9 th	\$12
2 nd	\$19	6 th	\$15	10 th	\$11
3 rd	\$18	7 th	\$14	11 th	\$10
4 th	\$17	8 th	\$13	12 th	\$9
 - ii. Note that each item down the list would be worth less and less to you.
 - iii. Now suppose I give 11 oranges instead. Do you divvy up the orange, reducing each activity by a twelfth or do you give up an option on your list? If so, what option do you give up?
 - e. Marginal utility
 - i. The value of one more gallon of water is very low but the value of one more diamond is quite high
 - ii. Use the most valuable ends first, then go down the list
 - f. Marginal cost

- i. Marginal cost follows the same pattern as marginal utility, it just goes in the opposite direction
 - 1. Marginal cost *increases* (instead of *decreases*)
 - 2. Start with the *lowest cost* (instead of the *highest value*)
- g. Oranges example, cont.
 - i. Now suppose that I'm picking the oranges I'm handing you from a large tree. This time, I start with the lowest cost first.

ORANGE	COST	ORANGE	COST	ORANGE	COST
1 st	\$8	5 th	\$12	9 th	\$16
2 nd	\$9	6 th	\$13	10 th	\$17
3 rd	\$10	7 th	\$14	11 th	\$18
4 th	\$11	8 th	\$15	12 th	\$19

II. Synthesis

- a. Suppose instead of giving or handing you the oranges, I sell you them.
 - i. For the first orange, it costs me \$8 to get the orange and you are willing to pay \$20. Thus there are many opportunities for us to agree on price
 - ii. For the next orange, it costs me \$9 and you value it at \$19. Again, there are many opportunities to agree on a price (though there are slightly fewer).
 - iii. This continues until the 7th orange, where the only price we can agree on is \$14.
 - iv. Note if we try to exchange an 8th orange, we wouldn't agree on a price.

ORANGE	UTILITY	COST	ORANGE	UTILITY	COST
1 st	\$20	\$8	7 th	\$14	\$14
2 nd	\$19	\$9	8 th	\$13	\$15
3 rd	\$18	\$10	9 th	\$12	\$16
4 th	\$17	\$11	10 th	\$11	\$17
5 th	\$16	\$12	11 th	\$10	\$18
6 th	\$15	\$13	12 th	\$9	\$19

- b. The key idea behind marginal decision making is that people will engage in an action until marginal benefit equals marginal cost
- c. Again, the miracle of prices appears. If the price rises, then you will forgo your *least* valuable action. This socially desirable result emerges without a central planner. Prices solve problems.