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ECON 202—Montgomery College

TOPIC 02: MARGINAL ANALYSIS AND SUPPLY AND DEMAND

I. The Marginal Revolution
   a. Economists think "on the margin"
      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
   b. 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
   c. 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
1st	$20	*5th*	$16	*9th*	$12
2nd	$19	*6th*	$15	*10th*	$11
3rd	$18	*7th*	$14	*11th*	$10
4th	$17	*8th*	$13	*12th*	$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?
   d. Increasing 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*)
   e. Oranges example, cont.
      i. Now suppose that I'm picking the oranges I'm handing you form a large tree. This time, I start with the lowest cost first.

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

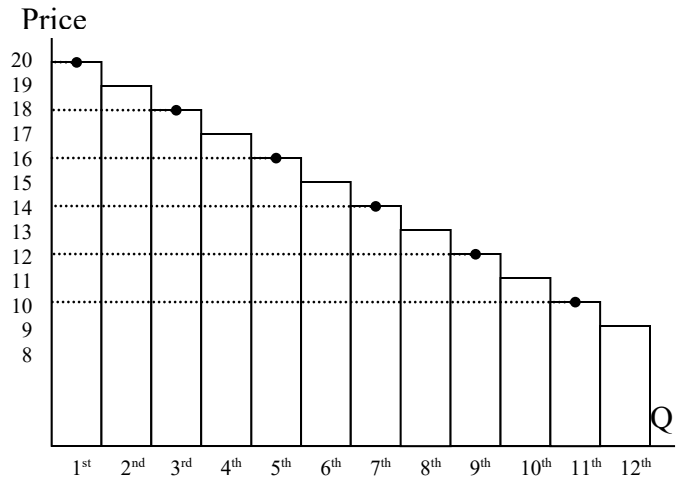
II. Synthesis
   a. Suppose instead of giving or handing you the oranges, I sell you them.
      i. For the first orange, it costs me $8 to get the orange and you are willing to pay $20. Thus there are many opportunities for us to agree on price
      ii. For the next orange, it costs me $9 and you value 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
1st	$20	$8	***7th***	***$14***	***$14***
2nd	$19	$9	*8th*	$13	$15
3rd	$18	$10	*9th*	$12	$16
4th	$17	$11	*10th*	$11	$17
5th	$16	$12	*11th*	$10	$18
6th	$15	$13	*12th*	$9	$19

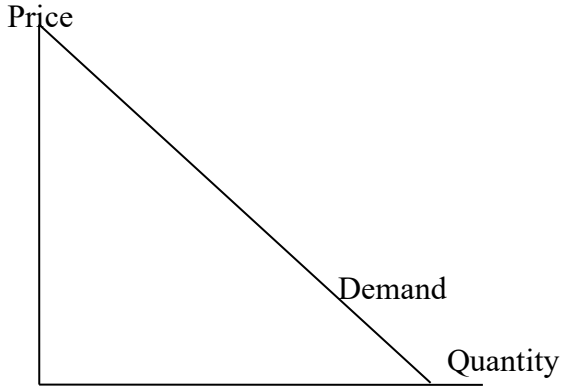
   b. The key idea behind marginal decision making is that people will engage in an action until marginal benefit equals marginal cost
   c. Again, the miracle of prices appears. If the price rises, then you will forgo your *least* valuable action. This socially desirable result emerges without a central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

III. A trading game.

IV. Demand
   a. The neoclassical framework leads us nicely to the notion of equilibrium—the point at which no one can be better off by changing his or her behavior.
      i. This is notably similar to the notion that people act until marginal cost = marginal benefit.

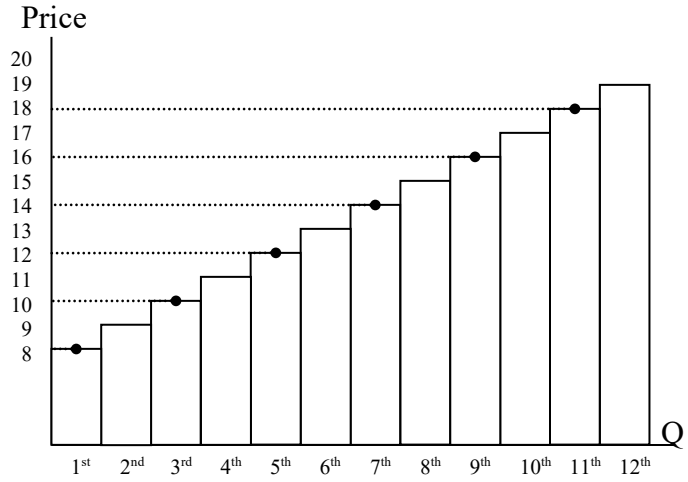


b. An important term in this analysis is *reservation price*—the maximum someone is willing to pay for something. It is essentially the same as a person's marginal benefit of something.
c. Recall from last time when we explored marginal benefit. We can summarize a person's marginal utilities (reservation price) for oranges with a diagram.

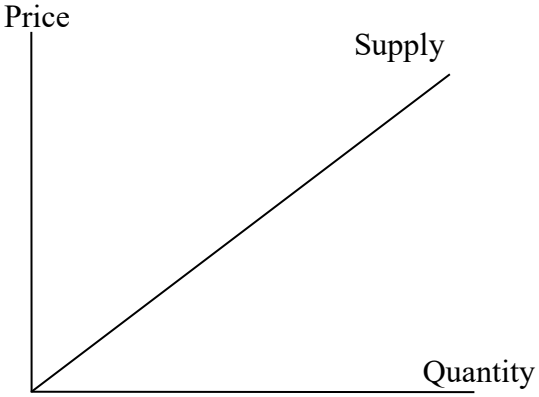


d. Now, instead of focusing on one person, consider *everyone* in the whole of a market, such as the market for socks or chicken. As each person's marginal utility fills the graph, the marginal benefits resemble a line. This is the demand curve.
e. Note how this diagram makes intuitive sense. As the price of something moves in one direction, the quantity people demand will move in the opposite direction, ceteris paribus (all other things being equal). This is called the *Law of Demand*.

V. Supply



a. Same goes with MC.



b. And once again we can expand our thinking to the whole a market with all the sellers. Like our previous example, we come up with a smooth line but this time of marginal costs. Economists call this the supply curve.
c. Note how this diagram also makes intuitive sense. As the price of something changes in one direction, the amount people will supply will move in that same direction. This is called the *Law of Supply*.

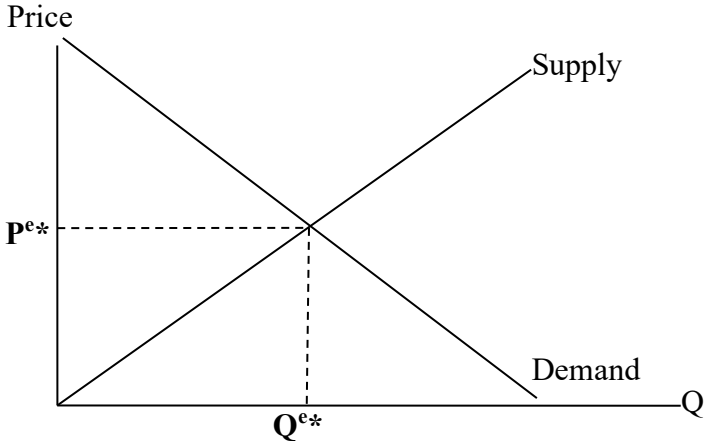
VI. Supply of labor

a. The supply of labor is much like a standard supply curve. The more people are paid, the more hours they are willing to work.
    i. For individuals this is not always the case, since supplying something requires time and effort (something people prefer using for their own ends). If you are paid $1,000 an hour to mow lawns, you would probably work only an hour a day.

ii. But for the *market*, the supply of labor slopes up. If lawn mowing is being paid so much an hour, *many* people would leave their current job and enter the market for lawn mowing.

VII. Equilibrium

a. Not surprisingly, the supply and demand curves can be combined into a single diagram. This diagram is perhaps the most important and insight in all of economics. It forms the foundation of much of economic thinking.



b. Remember that because supply and demand curves also double as marginal cost and marginal benefit curves, the same rules apply: people consume until marginal cost equals marginal benefit. Thus we achieve an equilibrium where $\mathbf{P^e}$ is the *equilibrium* price and $\mathbf{Q^e}$ is the *equilibrium* quantity.

c. The resulting price and quantity is also what we, as economists, would like to see. There is no waste at these points. Thus, this is also the *optimal* price and *optimal* quantity. We indicate optimums with a star (*).

i. If you've taken 201, you might not have made this distinction (you certainty didn't if you took it with me) because so often in 201, the equilibrium is the optimum (as it is here).

ii. But in this class, we will find that the most efficient possibility isn't the equilibrium result so it's useful to establish the notation that distinguishes them.