Thursday, Sept 30, Lecture 9
Consumer Choice

This lecture will be covered on Midterm 2, not on Midterm 1

Consumer Choice

- How do consumers decide what to purchase?
  - Partly a question of economics: budgets, prices, needs and wants…
  - …but partly a question of psychology, how you are feeling, hopes and desires, temptation, not entirely rational.
  - Marketers and advertisers understand this very well.

- Nowadays, many economists teach and do research in ***behavioral economics***, which incorporates economics and psychology. *(see short required reading)*

- Some business schools teach ***behavioral finance***.

- But in EC101 we will use traditional economic models with "rational, self-interested consumers."
  - The traditional models do not include the psychological factors that guide consumers,…
  - but traditional models have been useful for predicting consumer demand.

Classical Model of Consumer Choice

- ***According to the* classical *model***, people consume in order to get **satisfaction** or **utility**.

- Different quantities of various goods and services provide different amounts of utility.

- Rational people want to purchase a combination of goods and services that will ***provide the most utility***…

- …within the constraints (limits) imposed by their ***income and wealth***.

- (Economists also use the ***neoclassical model***, which is more abstract and may be misleading.)

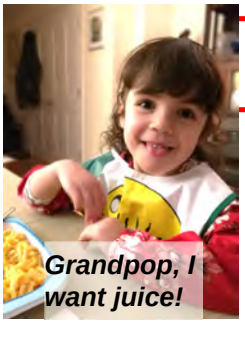
Maximizing Utility

- Suppose a consumer has a fixed income that she can spend.
- If she wants to maximize her utility, then she must think “at the margin.”
- She will try to get the most utility from dollar after dollar.

- She budgets her spending in order of importance.
  - She spends the first part of her income on basics: food and shelter.
  - The next part of her income may be spent on comfort.
  - If she has income remaining, she may purchase luxuries.

- The same idea applies to additional units of the same good.
  - The first units are applied to the most important uses.
  - Subsequent units increase comfort.
  - Additional units are often a luxury.
  - ***Still more, though, can make you worse off.***

Sophie's Utility from Juice



All numbers were made up by your instructor.

Juice (Q)	Marginal Utility* (MU)	Total Utility (U)
0		0
1	60	60
2	40	100
3	30	130
4	20	150
5	10	160
6	-10	150

If I asked Sophie to tell me her MU, she wouldn't know what I'm talking about.

Neither would an adult!

But she does get utility (pleasure), from the juice.

*Marginal Utility (MU) is the utility a consumer gets from one more unit of a good or service.

Utility and Willingness to Pay

- The **marginal utility (MU)** that a consumer receives from a unit of a good is difficult to observe or measure,…
- …because MU is a measure of satisfaction, a psychological state.
- However, consumers are **willing to pay** for a good because of the utility and welfare it creates.

- The **willingness to pay (WTP)**, which is the **maximum** amount a consumer is willing to pay for a good, is a monetary measure of utility and welfare.
- Economists like to use WTP, because we can observe payments and compute WTP from marketplace data.
- We will use WTP to discuss the relation between the ***demand curve*** and ***consumer welfare***.

Willingness to Pay (WTP)

- Willingness to Pay is the maximum that a consumer is willing to pay for a good or service.

- **Example:** WTP for Trump mask
  - In the window of the BU Bookstore, you see a Donald Trump mask.

- You say to yourself:

- You think, "I'd be ***willing to pay*** up to $60 for that mask."

- Then you notice a price tag on the mask.
  The price: $12.

- So you rush in and buy the mask.

- ***Willingness to pay (WTP)*** for something is the ***maximum*** you would be willing to pay for it.
  - If WTP = $60, you would ***not*** be willing to pay $61.
  - Of course, you are willing to pay $60,…
  - and you would be very happy to pay anything less than $60.
  - In particular, you would be delighted to pay only $12.

- Describing this situation, economists would say:
  - Your ***willingness to pay*** = $60.
  - The ***price*** = $12.
  - Your ***consumer surplus*** = $48.
- ***Consumer surplus (CS)*** is the monetary value of the benefit remaining to the consumer after the price (an opportunity cost) is paid.

$$CS = WTP - P$$

- Consumer surplus of a voluntary purchase will not be negative,…
- …because the consumer ***would not buy*** a good that would give him a negative surplus (unless he is behaving irrationally or has poor information).

Clicker Question

If the willingness to pay is $120 and the price is $140 then, how much consumer surplus will the rational consumer obtain?

a. $260
b. $20
c. $0
d. −$20

Willingness to Pay for Various Quantities of a Good

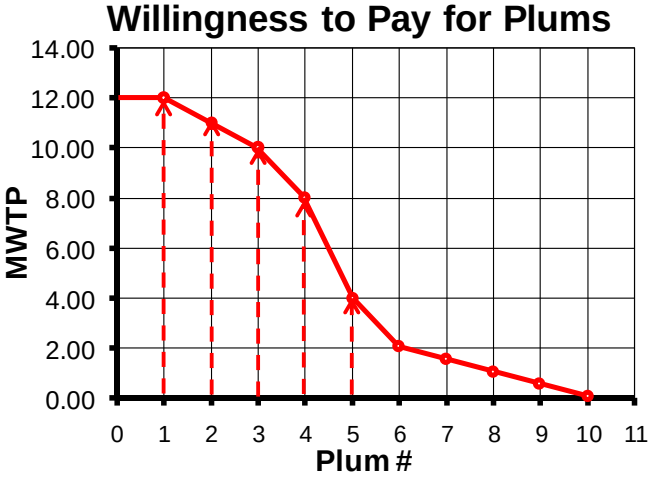
- Suppose you are willing to pay ***$8*** for ***4*** apples,...
- …and ***$9*** for ***5*** apples.
- Then how much are you willing to pay for the ***5th apple***?
- Only one possible answer: ***??***
- We call this the ***marginal willingness to pay (MWTP)*** for the ***5th*** apple.

Marginal Willingness to Pay

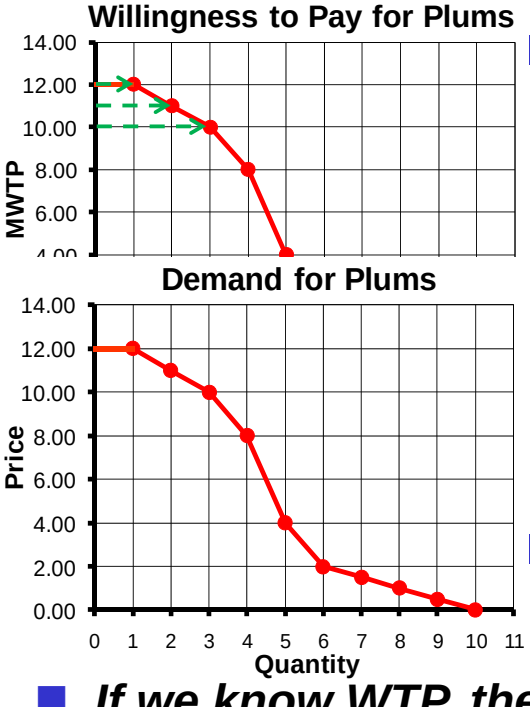
- The horizontal axis of the graph shows the number of each plum, not the quantity of plums.

- Suppose this is what Emily is willing to pay for each plum:
  - 1st 12
  - 2nd 11
  - 3rd 10
  - 4th 8
  - 5th 4
  - …

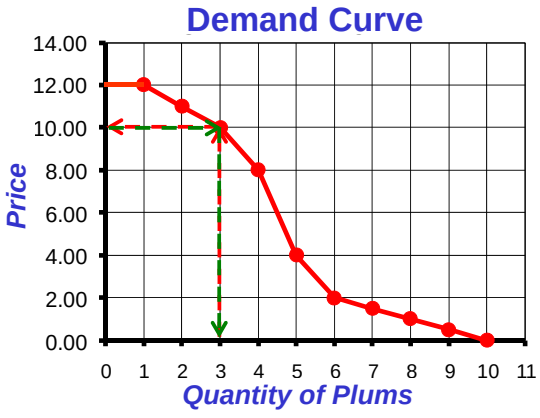
  } ***MWTP***



Graph of Willingness to Pay



- Does this curve look familiar?
  - If the price were $12, how many plums does Emily want to buy? Why?
  - How many at $11?
  - How many at $10?
- It's exactly the same *curve* as the demand curve!
- ***If we know WTP, then we know demand.***



- Yes, the WTP curve is exactly the same ***curve*** as the demand curve. But the **functions** are different.
- For the WTP curve…
  - The plum # *(horizontal axis)* is the independent variable.
  - The MWTP for that plum (vertical axis) is the dependent variable.
- For the *demand curve…*
  - The *price (vertical axis)* is the independent variable.
  - The *quantity of plums* (horizontal axis) is the dependent variable.
- The demand function and the WTP function are **inverses**.
- Utility creates the WTP, and WTP can be used to construct demand.

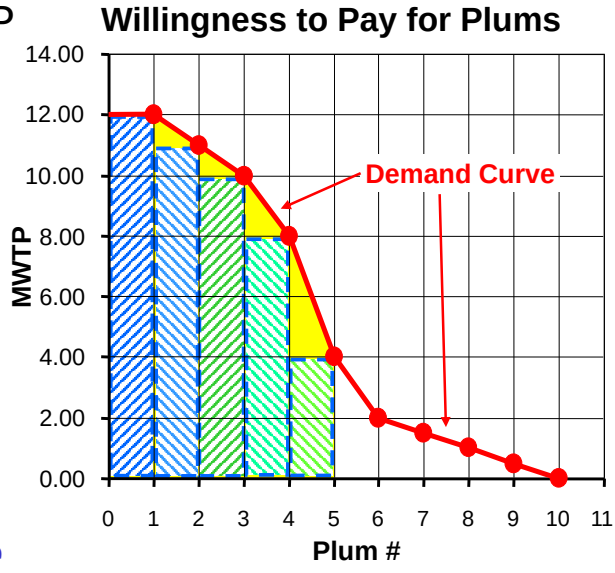
WTP for several units

- How much is Emily willing to pay for a grocery bag with exactly 5 plums in it (if she begins with no plums)?
- We could find out by adding up her MWTP for each of the first five plums:
  - 1st 12 +
  - 2nd 11 +
  - 3rd 10 +
  - 4th 8 +
  - 5th 4

  45

- We can also see the WTP for 5 plums on the graph.
  - 1st 12 +
  - 2nd 11 +
  - 3rd 10 +
  - 4th 8 +
  - 5th 4

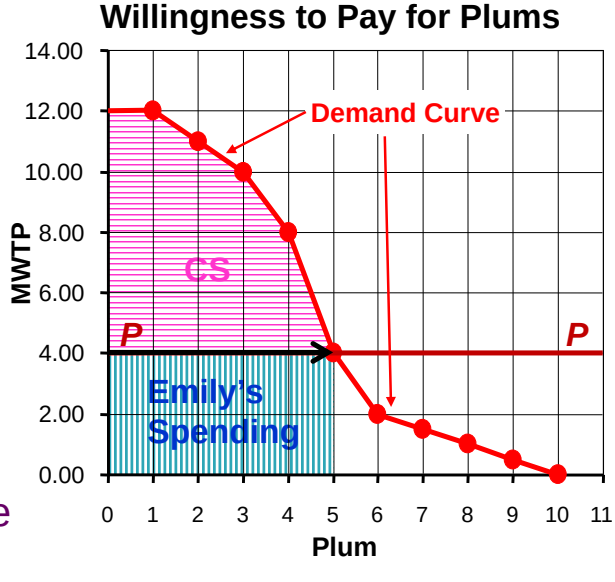
    45



- Total WTP for ***5*** units is approximately the **area** under the ***demand curve*** up to the ***5th*** unit.
- For divisible goods, the little yellow triangles would be filled in.
- The same rule applies to any other number of units.

Consumer Surplus and Demand

- Suppose the price is ***P=$4***.
  - Then Emily's demand curve implies she will want to buy 5 plums.
  - Her WTP for 5 plums is $45.
  - But at $4 each, Emily will have to spend only $20 on plums.
  - The difference between the WTP and the expenditure, in this case $25, is the ***consumer surplus (CS)*** that ***Emily*** retains.



Clicker Question

Emily is willing to pay the following for each lobster:

1st	12
2nd	11
3rd	10
4th	8
5th	4

If the price of lobsters is $9, what will her total consumer surplus be?

a. 45
b. 33
c. 6
d. 0

How accurately does WTP measure Utility and Consumer Welfare?

- Consumers buy things to obtain utility (satisfaction), which creates welfare.
- But consumers' WTP for goods may not always correspond to the utility the goods create.
  - Poor consumers may not be willing to pay as much as rich consumers for goods that give them the same utility.
  - Goods have unknown characteristics.
  - Utility depends on preferences* (or tastes), but people may not know their own preferences.
  - Consumers are sometimes willing to pay for goods that predictably lower their welfare.
  - Preferences change over time.

WTP may be inaccurate: Examples

- WTP may underestimate the utility of the poor:
  - Poor people may not be able to pay much for the goods that give them high utility.
  - If we want to see the WTP of the entire society by adding up the WTPs of individuals,…
  - …we may be placing too much weight on the rich.
  - For example, the WTP for expensive cars may exaggerate the utility those cars create.
  - And the WTP for cars of the poor may underestimate utility..

- Goods have unknown characteristics, so WTP may not correspond to true utility.
  - Computers
  - Universities (from parents' point of view)

- Utility depends on preferences (or tastes), but people may not know their own preferences.
  - "Taste the mango ice cream. Do you like it?"

    "Hmmm. I'm not sure."

  - "Why did you order a whole pizza?"

    "I thought I would eat all of it, but I'm stuffed."

- Consumers are sometimes *willing to pay* for goods that predictably lower their welfare.
  - Consumers may be self-destructive.
  - Or they may yield to temptation and eat things that are bad for them.

- Preferences and WTP change over time.
  - "I started to smoke, because I wanted to be like my stupid friends…. Now I know better."
  - "When I first tried caviar, I said 'yuk,' but now I've developed a taste for it.
  - This means that WTP may reflect a consumer's welfare in the short run, but not in the long run.

- *In spite of these problems*, WTP and demand are often useful, for example, when…
  - explaining how prices and incomes affect the choices that consumers make, and
  - predicting prices and quantities transacted.
- WTP and demand predict what people will do, even if they don't accurately predict the welfare obtained.
- **Examples:**
  - How will an increase in the price of cigarettes affect teenage smoking? teenage drinking?
  - How will an increase in the price of gasoline affect the kind of cars people buy?

Clicker Question

WTP may not be an accurate measure of welfare, because

a. preferences change.
b. people don't always know their preferences.
c. people don't always know the characteristics of goods.
d. temptation may increase WTP.
e. ***ALL** of the above*

End of Lecture 9