Lecture 10. Consumer Choice and Consumer Welfare

Clicker Question
Consumer Choice

- How do consumers decide what to purchase?
  - Primarily a question of psychology.

- But economists traditionally have used models of “rational, self-interested consumers”:
  - The traditional models do not include the psychological factors that guide consumers,…
  - but traditional models are useful for predicting consumer demand.

- Nowadays, many economists work in the field of behavioral economics, which incorporates economics and psychology.
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 maximize their 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 will probably spend 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.

**Emily’s Utility from Juice**

<table>
<thead>
<tr>
<th>Juice (Q)</th>
<th>Marginal Utility* (MU)</th>
<th>Total Utility (U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>30</td>
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<tr>
<td>4</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>-10</td>
<td></td>
</tr>
</tbody>
</table>

*All numbers were made up by your instructor.*
Willingness to Pay

- The marginal utility (MU) that a consumer receives from a unit of a good is difficult to observe…

- 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 compute it from market-place data.

- We will use WTP to discuss the relation between the demand curve and consumer welfare.

Willingness to pay (WTP) is the maximum you would pay.

- Suppose you are thinking of buying a good.
  - If WTP = $60, you would not be willing to pay $61.
  - Of course, you are willing to pay $60,…
  - and you would be happy to pay anything less than $60.
  - In particular, if the price of the good is only $12, you would be delighted to buy it.
Describing this situation, economists would say:

- Your **willingness to pay** = $60.
- The **price** = $12.
- Your **consumer surplus** = $48.

**Consumer surplus** is the monetary value of the benefit remaining to the consumer after the price 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).
Marginal Willingness to Pay

Suppose Emily is willing to pay the following for each plum:

- 1\textsuperscript{st} 12
- 2\textsuperscript{nd} 11
- 3\textsuperscript{rd} 10
- 4\textsuperscript{th} 8
- 5\textsuperscript{th} 4
- ...

These numbers are Emily’s marginal willingness to pay (MWTP) for plums.

Graph of Willingness to Pay

Does this curve look familiar?

It’s exactly the same curve as the demand curve!

- If the price were $12, how many plums would Emily buy?
- How many at $11?
- How many at $10?

If we know WTP, then we know demand.
The demand function and the WTP function are inverses. Utility creates the WTP, and WTP can be used to construct demand.

For the demand curve…
- The price (vertical axis) is the independent variable.
- The quantity of plums (horizontal axis) is the dependent variable.

For the WTP curve…
- The plum # (horizontal axis) is the independent variable.
- The MWTP for that plum (vertical axis) is the dependent variable.

Yes, the WTP curve is exactly the same curve as the demand curve. But the functions are different.

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:

- 1<sup>st</sup> 12 +
- 2<sup>nd</sup> 11 +
- 3<sup>rd</sup> 10 +
- 4<sup>th</sup> ? +
- 5<sup>th</sup> ?

??
We can also see the WTP for 5 plums on the graph.

- 1st: 12 +
- 2nd: 11 +
- 3rd: 10 +
- 4th: ? +
- 5th: ?

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.

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**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 $\$?__$. 
  - But at $4 each, Emily will have to spend only $\$?__ on plums.
  - The difference between the WTP and the expenditure, in this case $\$?__$, is the **consumer surplus (CS)** that Emily retains.
How accurate is WTP as a Measure of 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 able to pay as much as the rich for goods with similar 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.

*Preferences describe what a person wants or desires, or what combinations of goods a person prefers to other combinations.
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 of expensive cars may exaggerate the utility those cars create.
- And the WTP cars of the poor may be too low.

Examples

- Goods have unknown characteristics.
  - Computers
  - Universities (from parents’ point of view)
    Parents expect: but get:
More unknown characteristics

- Stereo Receiver, Model XRB81JK22V
- Super 88 (Asian supermarket).

Utility depends on preferences* (or tastes), but people may not know their own preferences.

*“Preferences” describe what a person wants or desires, or what combinations of goods a person prefers to other combinations.
Consumers are sometimes willing to pay for goods that predictably lower their welfare.

- The consumers may be self-destructive.
- Or they may yield to temptation.

Preferences and WTP change over time.

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.

Examples:
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