Economics 101 – Section 5

Lecture #11 – February 19, 2004

Consumer Choice

Indifference Curves

<table>
<thead>
<tr>
<th>Pizza</th>
<th>Marginal Utility per dollar spent (of last unit)</th>
<th>Marginal Utility (of last unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Slices</td>
<td>115</td>
<td>-</td>
</tr>
<tr>
<td>5 Slices</td>
<td>135</td>
<td>20</td>
</tr>
<tr>
<td>6 Slices</td>
<td>154</td>
<td>19</td>
</tr>
<tr>
<td>7 Slices</td>
<td>171</td>
<td>17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deer</th>
<th>Marginal Utility per dollar spent (of last unit)</th>
<th>Marginal Utility (of last unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Cans</td>
<td>63</td>
<td>-</td>
</tr>
<tr>
<td>6 Cans</td>
<td>75</td>
<td>12</td>
</tr>
<tr>
<td>7 Cans</td>
<td>86</td>
<td>11</td>
</tr>
<tr>
<td>6 Cans</td>
<td>90</td>
<td>10</td>
</tr>
</tbody>
</table>
Outline

- Recap on consumer behavior and optimization
- Deriving the demand curve
- Note omit pages 136-138 in text
- From individual to market demand
- Indifference curves

Consumer decision making

- Where are consumers going to be the best off?
- What is the best mix between the different goods at the different prices?
- To determine what is the optimal we need to look at the marginal effects
  - That is, where is the marginal benefit (marginal satisfaction) of the next unit of consumption of one good is equal to the marginal benefit of another good while taking into consideration the different prices
Specifically

\[
\frac{\text{Marginal Utility}_x}{P_x} = \frac{\text{Marginal Utility}_y}{P_y}
\]

Consumer decision making

- Need to look for a point where the marginal benefits per dollar spent are the same
- A utility maximizing consumer will choose the point on the budget line where marginal utility per dollar is the same for both goods.
  - At this point there is no further gain from reallocating expenditures in either direction.
Figure 4  Consumer Decision Making

<table>
<thead>
<tr>
<th></th>
<th>CONCERTS at $30 each</th>
<th>MOVIES at $10 each</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(4) Marginal Utility</td>
<td>(7) Marginal Utility</td>
</tr>
<tr>
<td></td>
<td>per Dollar spent on</td>
<td>per Dollar spent on</td>
</tr>
<tr>
<td></td>
<td>Last Concert (MU_{concerts} / P_{concerts})</td>
<td>Last Movie (MU_{movies} / P_{movies})</td>
</tr>
<tr>
<td>(1) Point on Budget</td>
<td>(2) Number of Concerts per Month</td>
<td>(3) Marginal Utility from Last Concert (MU_{concerts})</td>
</tr>
<tr>
<td>Line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>0 0 0 0 0</td>
<td>—</td>
</tr>
<tr>
<td>B</td>
<td>1 500 50 50 50</td>
<td>—</td>
</tr>
<tr>
<td>C</td>
<td>2 1200 40 40 40</td>
<td>9 9 9 9 9</td>
</tr>
<tr>
<td>D</td>
<td>3 600 20 20 20</td>
<td>6 6 6 6 6</td>
</tr>
<tr>
<td>E</td>
<td>4 350 13 13 13</td>
<td>3 3 3 3 3</td>
</tr>
<tr>
<td>F</td>
<td>5 300 10 10 10</td>
<td>0 0 0 0 0</td>
</tr>
</tbody>
</table>

Figure 5  Effects of an Increase in Income
Consumer behavior

- Note: When making our decisions in practice we do not go through trying to compute how many “utils” we are gaining on the margin for each dollar spent for each good.
  - We each go through this process every day without drawing graphs and writing down equations
  - What is important from an economic standpoint is that for replicating consumer behavior we need to build models that are consistent with consumer behavior and follow the same logic
  - Using these models we can replicate what consumers actually do!

Deriving the demand curve

- The demand curve shows the relationship between the quantity demanded and the price of the good
  - Generally, as price goes up we demand less of it
- Recall what happens when price of one good increases or decreases but the other does not change
Figure 6  Deriving the Demand Curve

Deriving the market demand

- Most of what we have talked about thus far has been for individuals and how to construct the individual demand curve
  - For looking at the problems or answering questions associated with the economy as a whole or a market we need to come up with the market demand for a given good
- We need to horizontally sum the individual demand curves for everyone in the market
Figure 8  From Individual to Market Demand

Indifference curves

- Generally when given a choice we would like more of any good which gives us positive utility than less.
- Imagine you are in a two good world with only food and travel.
  - Most of us would like to consume both of these in positive quantities.
    - If we are consuming positive quantities of both of these goods and we wanted more travel there should be some amount of food we would be willing to give which gives us the same level of overall satisfaction or utility.
Indifference curves

- In other words, there is some amount of food we would be willing to give up to get more travel that would make us indifferent between the two scenarios.
- This notion of being just as well off under two different situations gives rise to the concept of an indifference curve.

Figure A.1 An Indifference Curve

[Diagram showing an indifference curve with points G, H, and J, and units of all other goods and minutes of phone time.]
Indifference curves

- When we consume more of both goods then we have higher utility.
- When we consume less of both goods then we have a lower level of utility (i.e. lower level of happiness or satisfaction).

Figure A.2  An Indifference Map
Indifference curves

- Going back to the previous lecture, how did we know what point on the indifference curve would max our utility?
- This was where

\[
\frac{\text{Marginal Utility}_x}{P_x} = \frac{\text{Marginal Utility}_y}{P_y}
\]

Indifference curves

- This point is where the indifference curve is just tangent to the budget line
  - i.e. where it touches in only one point
Indifference curves

- We use these tangencies to derive the demand curve
Figure A.4
Deriving the Demand Curve

(a)

(b)

Price per Minute of Phone Time

Units of All Other Goods

Minutes of Phone Time

Kate’s Demand for Phone Time

Minutes of Phone Time