CONSUMER BEHAVIOR: CONSUMPTION SIDE ANALYSIS

SCARCITY AND RATIONAL CHOICE
Although scarcity, as defined in Lectures 1-2 was of a different nature, the most common form of scarcity is the scarcity of income, i.e., the money resources are limited and consumers are faced with the decision on how to spend those scarce resources on different goods and services.
Rational choice consists in evaluating the costs and benefits of different decisions and then choosing the decision that gives the highest benefit relative to cost.
While taking decisions, economics stress the importance of weighing the marginal costs against marginal benefits rather than total costs and benefits.

Ignorance and Irrationality:
There is a difference between “ignorance” and “irrationality.” A person operating under uncertainty and thus at least partial ignorance can still make rational decisions by taking into account all the information she has at her disposal. Rationality is an ex-ante concept. Economists do not judge rational behavior on the basis of actual outcomes, rather on the basis of choices made.

CARDINAL VS. ORDINAL APPROACH
There are two approaches to analyzing consumer behavior;
- Marginal utility analysis (Cardinal approach)
- Indifference curve approach (Ordinal approach)

MARGINAL UTILITY ANALYSIS OR CARDINAL APPROACH
Marginal utility approach involves cardinal measurement of utility, i.e., you assign exact values or you measure utility in exact units, while the indifference curve approach is an ordinal approach, i.e., you rank possibilities or outcomes in an order of preferences, without assigning them exact utility values.
Utility is the usefulness, benefit or satisfaction derived from the consumption of goods and services.
Total utility (TU) is the entire satisfaction one derives from consuming a good or service.
Marginal utility (MU) is the additional utility derived from the consumption of one or more unit of the good.

THE LAW OF DIMINISHING MARGINAL UTILITY
The law of diminishing marginal utility states that as you consume more and more of a particular good, the satisfaction or utility that you derive from each additional unit falls.

Example:

<table>
<thead>
<tr>
<th>Bottle of coke</th>
<th>TU</th>
<th>MU</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>7</td>
<td>7-0=7</td>
</tr>
<tr>
<td>2</td>
<td>11</td>
<td>11-7=4</td>
</tr>
<tr>
<td>3</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>13</td>
<td>-1</td>
</tr>
</tbody>
</table>

As we consume more & more bottles of cokes, total utility increases & marginal utility remains positive till units 4, after that total utility starts decreasing & marginal utility becomes negative. Total utility is maximum at unit 5 & marginal utility is zero at this point.
**Total & Marginal utility curves:**
The marginal utility curve slopes downwards in a MU-Q graph showing the principle of diminishing marginal utility. The MU curve is exactly equal to the demand curve. The total utility curve starts at the origin and reaches the peak when marginal utility is zero. Marginal utility can be derived from total utility. It is the slope of the lines joining two adjacent points on the TU curve.

![Utility Graph](image)

At point A, TU is at maximum & MU is zero

**Marginal utility functions can also be derived using calculus:**

\[ TU = 60Q - 4Q^2 \]

This is quadratic utility function. To find out marginal utility, we take derivative of TU function:

\[ MU = \frac{dTU}{dQ} = 60-8Q \]

For calculating MU, we take different values of Q.

**DECIDING ON THE OPTIMAL LEVEL OF CONSUMPTION**

**Consumer Surplus:**
Consumer surplus is the difference between willingness to pay and what the consumer actually has to pay; i.e. CS= MU-P. Total consumer surplus is the area between the MU curve and the horizontal market price line. Thus as price increases, consumer surplus shrinks, and vice versa.

The optimal point of consumption is that point where consumer surplus becomes zero. If marginal utility is greater than price, consumption will increase causing MU to fall until it equals price, and vice versa.

There are 3 points regarding marginal utility and price:

1. Consumer will consume additional units of the commodity until marginal utility becomes equal to the price (MU = P)
2- If MU > P then consumer will increase consumption, increasing consumption causes MU to fall and MU will become equal to the P.
3- If MU < P then consumer will decrease consumption, decreasing consumption causes MU to rise and MU will become equal to the P.

THE EQUI-MARGINAL PRINCIPLE
In the case of more than two goods, optimum consumption point can be arrived at by using the equi-marginal principle. This state that a person will derive a maximum level of TU from consuming a particular bundle of goods when the utility derived from the last dollar spent on each good is the same:

\[ MU_a = MU_b = MU_c \]

\[ \frac{P_a}{MU_a} = \frac{P_b}{MU_b} = \frac{P_c}{MU_c} \]