



## Lecture 9

- **Utility function**
- **Budget constraint**
- **Consumer choice**
  - Graphical treatment
  - Mathematical treatment  
(Next time under consumer theory)
- **Case studies on consumer choice**

## Utility Function

- Utility is the level of satisfaction that a person gets from consuming a good or undertaking an activity (we only focus on the ordinal representation of satisfaction)
- Utility function assigns a number to each market basket so that a higher number represents a higher utility (the values have only relative meaning and the absolute value is not important so that we can't add utilities defined in this way)
- Marginal utility (MU): (do a numerical example)
  - MU measures the additional satisfaction obtained from consuming an additional unit of a good (diminishing MU)
  - On an IC,  $dU = 0 \Rightarrow MU_X(dX) + MU_Y(dY) = 0$   
 $\Rightarrow MU_X/MU_Y = -dY/dX = MRS = P_X/P_Y$  or  $MU_X/P_X = MU_Y/P_Y$
  - MU per dollar of expenditure is the same for each good



## Budget Constraint

- **Definition:**  $I = \sum_i p_i C_i$ 

A consumer's budget constraint describes the combinations of goods that can be purchased given the consumer's income and the prices of goods
- **Shifts of a budget constraint:**
  - **Income change:**  
parallel shift
  - **Price change:**  
rotation



## Consumer's Maximization Problem

- A consumer maximizes his/her utility given his/her income and the market prices of goods
- A consumer chooses the highest indifference curve in his/her indifference map given his/her budget constraint
  - Chooses the indifference curve that is tangent to the budget line
  - For two goods,  $MRS_{XY} = P_X/P_Y$
  - Intuition: (discuss cases where  $MB \neq MC$ )
    - MB (measured by MRS, the willingness to pay)
    - = MC (measured by the opportunity cost of good X in terms of good Y)

## Case Studies

- **Designing new automobiles:**
  - Trade off between performance (X) and styling (Y)
  - Difference equilibrium/market combinations for different consumers
- **Grant programs:**
  - **Nonmatching grant: no restrictions on the use of money**
    - A parallel shift of the budget line
  - **Matching grant: subsidize one particular type of expenditure**
    - A rotation of the budget line
- **College trust fund: an inkind transfer**
  - A kinked budget constraint
  - A corner solution (as consumption  $\geq C_0 > 0$ )