Introduction to Microeconomics I
ECO201/LAG-PRM211

Lesson No.3: Consumer Behaviour II

THE ORDINALIST APPROACH

Lesson Outline

- State the assumptions behind the ordinalist approach
- Understand the basic concepts used by the ordinalist
- Examine consumer equilibrium
- Analyze consumers' response to price and income changes
- Derive the consumer's demand curve

Assumptions of the ordinalist approach

- Rationality – all consumers are rational (i.e., maximization of utility, level of income, market prices, & full knowledge)
- Utility is ordinal – all consumers have preferences (i.e., basket of goods), which can be ranked according to satisfaction.
- Completeness of Preferences - Consumers can compare any two bundles of goods

  one is preferred (Good X is preferred)

  the other is preferred (Good Y is preferred)

  they are equally preferred (Good X and good Y are equally preferred)

Assumptions of the ordinalist approach

- Transitivity of Preferences – the consumer is typically consistent in his choice
  - A > B (i.e., A is always preferred to B)
  - A > B, and B > C, then A > C

- Non-Satiety (More is Better) – Consumers prefer more of a good to less, holding other goods constant. This ensures downward-sloping indifference curves

- Total utility depends on the quantities of commodities consumed
  - $U = f(q_1, q_2, \ldots, q_x, q_y, \ldots, q_n)$

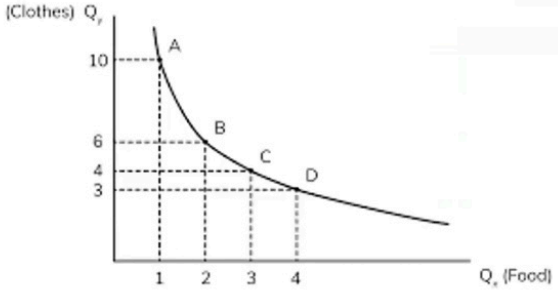
Why the Assumptions matters

These assumptions allow economists to:

- analyze consumer equilibrium,
- derive demand curves,
- avoid the unrealistic measurement of utility,
- explain substitution and income effects (Hicksian decomposition).

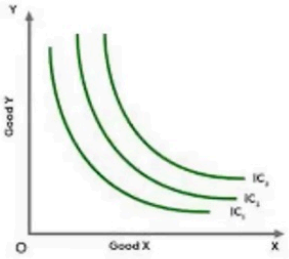
What is an Indifference Curve?

An indifference curve is a graphical representation that shows all combinations of two goods that give a consumer the same level of satisfaction (utility).



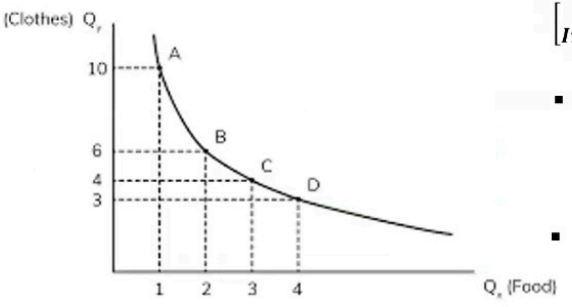
- Every point on an indifference curve is equally preferred by the consumer
- The consumer is indifferent among them.

What are the Features of an Indifference Curve?



- ICs are downward sloping
- ICs are convex to the origin. This reflects the **diminishing marginal rate of substitution (MRS)**
- Higher ICs represent higher utility
- No two ICs must intersect
- There are infinitely many indifference curves, each representing a different level of satisfaction.
- Two or more ICs on a given plane is called an Indifference Map

The Slope of an Indifference Curve?



$$\left[\begin{matrix}\textbf{Slope of}\\ \textbf{Indiffrence Curve}\end{matrix}\right] = -\frac{\delta y}{\delta x} = \boldsymbol{MRS_{x,y}}$$

- Marginal Rate of Substitution (MRS), is the negative of the slope of an indifference curve at any one point.
- $\boldsymbol{MRS_{x,y}}$. Is the number of units of commodity y that must be given up in exchange for an extra unit of commodity x so that the consumer maintains the same level of satisfaction.

The Budget Constraint



- The consumer has a given income level. This sets a limit to his maximizing behaviour.
- Income is a constraint in the analysis of consumer behaviour using the ordinalist approach.

$$Y = P_x Q_x + P_y Q_y$$

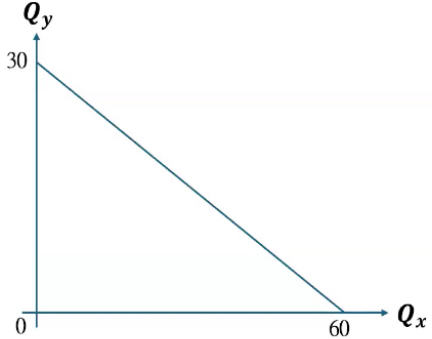
- Solve for Q_y.

$$Q_y = \frac{1}{P_y} Y - \frac{P_x}{P_y} . Q_x .$$

- The budget line shows all the combinations of goods obtainable given the consumer's income, and the prices of the products that the consumer buys.

- Assigning successive values to Q_x, given the income, Y and the commodity prices, P_x and P_y

Q_x	P_x	Q_y	P_y	Y
60	120	0	0	120
50	100	5	20	120
40	80	10	40	120
30	60	15	60	120
20	40	20	80	120
10	20	25	100	120
0	0	30	120	120



- We derive this Budget using the model, $Q_y = \frac{1}{P_y}Y - \frac{P_x}{P_y}.Q_x$.



Given that: $Q_y = \frac{1}{P_y}Y - \frac{P_x}{P_y}.Q_x.$

If $Q_x = 0, Q_y = \frac{Y}{P_y}$

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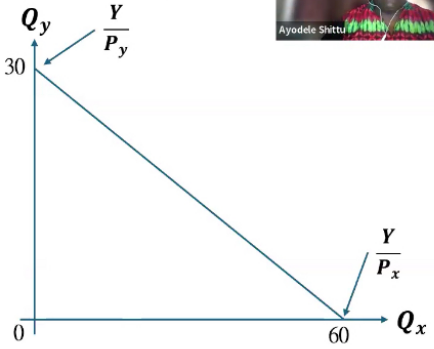
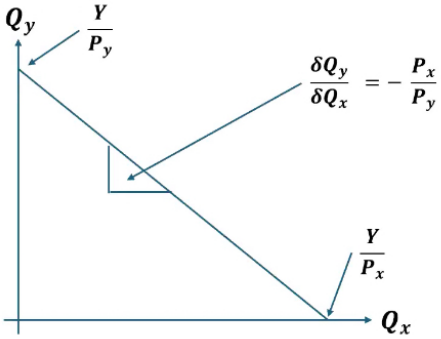


- If the consumer chooses to spend his/her income on only one commodity, Q_x , buying zero unit of Q_y, he'she will get $\frac{Y}{P_x}$, vice-versa.

The Slope of the Budget Constraint



- Mathematically, the slope of the budget line is the derivative of: $Q_y = \frac{1}{P_y} * Y - \frac{P_x}{P_y} * Q_x$



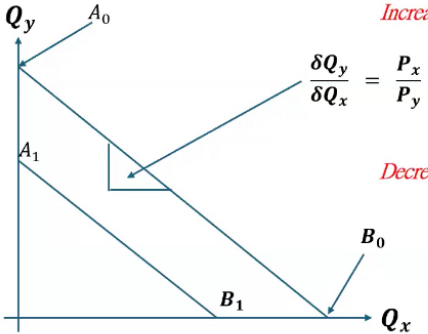
The slope of the budget line measures the relative prices of two goods and represents the opportunity cost of consuming one good in terms of the other.

- The negative sign shows the trade-off: to get more of X, you must give up some of Y.

The Movements of the Budget Constraint (1/



- Due to the change in the consumer's *income level*, the budget line can either shift inward or outward.



Increase in income → budget line shifts outward (parallel shift)

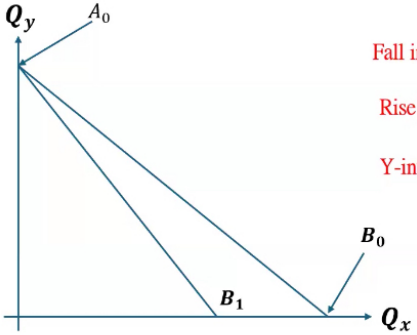
Decrease in income → budget line shifts inward (parallel shift)

Prices remain constant, so the slope does not change — only purchasing power changes.

The Movements of the Budget Constraint (2/



- Due to the change in the *prices of commodities*, the budget line can either rotate outward or inward depending on the direction of price change.



Change in the Price of Good X

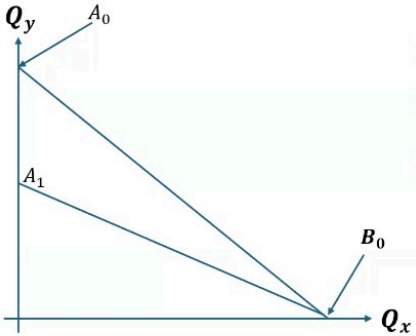
Fall in Px → budget line rotates outward along the X-axis

Rise in Px → budget line rotates inward along the X-axis

Y-intercept remains unchanged; slope changes.

The Movements of the Budget Constraint (3/3)

- Due to the change in the *prices of commodities*, the budget line can either rotate outward or inward depending on the direction of price change.



Change in the Price of Good Y

Fall in ***PY*** → budget line rotates outward along the Y-axis

Rise in ***PY*** → budget line rotates inward along the Y-axis

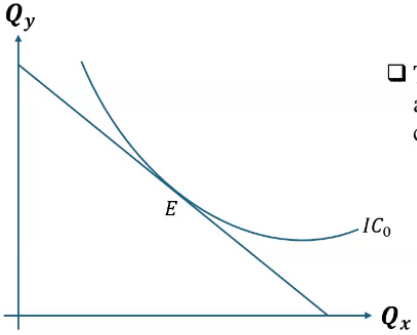
X-intercept remains unchanged; slope changes.

❑ Movements of the budget line are driven by changes in consumer income and the prices of goods.

The Consumer Equilibrium Condition (1/



- A consumer is in equilibrium when they choose the most preferred combination of goods they can afford.

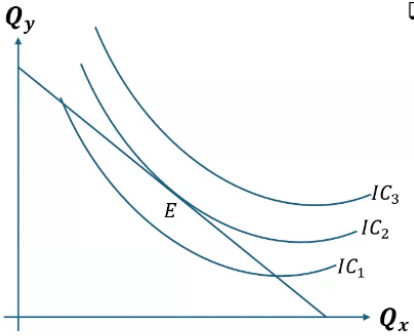


- The point of tangency between the indifference curve and the budget line defines the consumer equilibrium condition

The Consumer Equilibrium Condition (2/



- A consumer is in equilibrium when they choose the most preferred combination of goods they can afford.

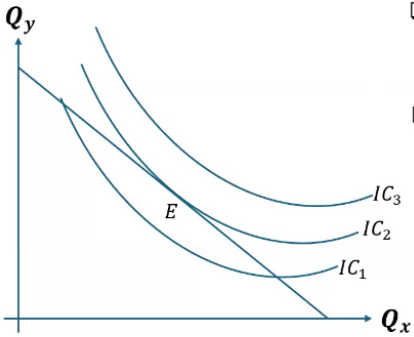


- The consumer will derive higher levels of satisfaction from IC_2 and IC_3 respectively.
- The consumer can achieve higher satisfaction until he reaches point E, which is tangent to the highest possible indifference curve.
- Satisfaction is maximized at point E, where the slope of the indifference curve is equal to the slope of the budget line.

The Consumer Equilibrium Condition (3/



- We can also depict this mathematically.



- Recall that the slope of the indifference curve is given as: $\frac{\delta Y}{\delta X} = -\frac{MU_x}{MU_y} = -MRS_{xy}$
- Recall that the slope of the budget line is given as: $\frac{\delta Y}{\delta X} = -\frac{P_x}{P_y} =$
- Let: $-\frac{MU_x}{MU_y} = -\frac{P_x}{P_y}$
- Thus: $MRS_{xy} = \frac{P_x}{P_y}$. This is the necessary condition for consumer equilibrium