

Consumer Equilibrium Made Simple

How does a consumer choose the best combination of goods with limited income?

1. The basic idea

A consumer usually wants more satisfaction but has limited income. Prices also limit what they can buy. Consumer equilibrium is the point where the consumer chooses the affordable combination of goods that gives the highest possible satisfaction, given their preferences, income and market prices.

Think of it this way

You have a fixed budget for two goods, X and Y. The aim is not simply to buy the most X or the most Y. It is to choose the combination you prefer most among all combinations you can afford.

2. The two things that determine the choice

Preferences	Which combinations the consumer likes more. An indifference curve joins combinations that provide the same level of satisfaction.
Budget constraint	Which combinations the consumer can afford. The budget line shows combinations that use the whole budget.

3. The budget equation

If the consumer buys quantities X and Y, spends income M, and the goods have prices P_x and P_y , the budget constraint is:

$$P_x X + P_y Y = M$$

On the budget line, all income is spent. Points below the line are affordable but leave some income unspent; points above it are unaffordable.

The goal

Reach the highest possible indifference curve without crossing beyond the budget line.

4. Where is equilibrium?

In the standard indifference-curve approach, the consumer reaches an interior equilibrium where the budget line just touches the highest attainable indifference curve. This point is called the point of tangency.

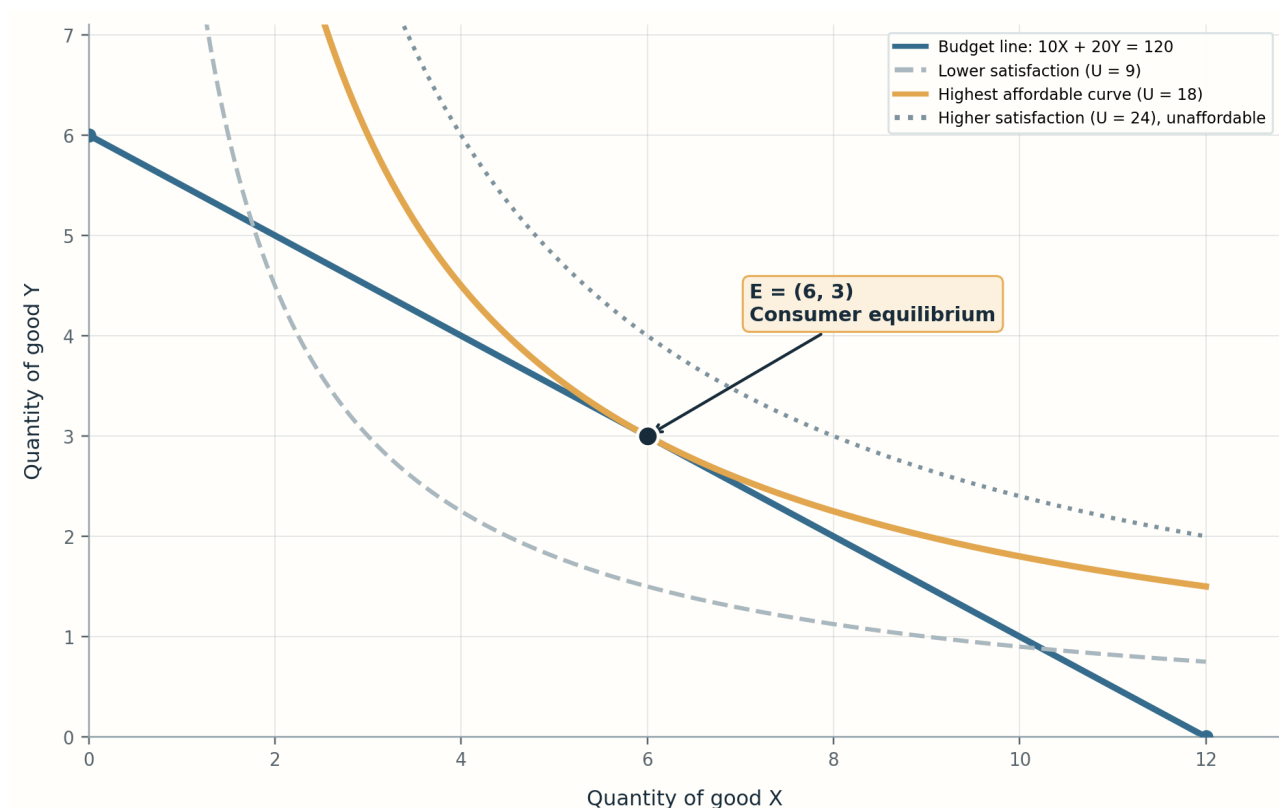


Illustration: the budget is 120, the price of X is 10, and the price of Y is 20. The example uses $U = XY$ to draw the indifference curves. The numbers are illustrative, not universal.

Why does tangency matter?

The slope of the indifference curve represents the consumer's willingness to trade Y for X while keeping satisfaction unchanged. The slope of the budget line represents the market trade-off between the two goods. At an interior optimum, these trade-offs match.

$$MRS_{xy} = P_x / P_y$$

Here MRS_{xy} is defined as MU_x / MU_y , the absolute value of the indifference curve slope. Some textbooks use different subscript conventions, so always check the definition being used.

Important condition

Tangency is the usual interior-solution rule when preferences are smooth and convex. If the best choice is a corner solution, equilibrium may occur without tangency.

5. A numerical example

Suppose a consumer has income of ₹120. Good X costs ₹10 per unit and good Y costs ₹20 per unit. Assume, just for this example, the satisfaction function is $U = XY$.

Income (M)	Price of X	Price of Y
₹120	₹10	₹20

Step 1: Write the budget constraint

$$10X + 20Y = 120$$

Step 2: Find the interior optimum

For $U = XY$, marginal utilities are $MU_x = Y$ and $MU_y = X$. At the interior optimum, $MU_x/P_x = MU_y/P_y$. Therefore:

$$Y / 10 = X / 20 \Rightarrow X = 2Y$$

Step 3: Substitute into the budget equation

$$10(2Y) + 20Y = 120 \Rightarrow 40Y = 120$$

$$Y = 3, \text{ so } X = 6$$

Check the answer

Spending on $X = 6 \times ₹10 = ₹60$. Spending on $Y = 3 \times ₹20 = ₹60$. Total spending = ₹120. Both the budget constraint and the equilibrium condition hold.

6. Exam-ready answer

Consumer equilibrium is the position in which a consumer obtains maximum satisfaction from given income and market prices. Under the indifference-curve approach, for an interior equilibrium, the budget line is tangent to the highest attainable indifference curve. The equilibrium condition is $MRS_{XY} = P_x/P_y$, where MRS_{XY} is defined as MU_x/MU_y . The consumer must also satisfy the budget constraint, $P_x X + P_y Y = M$. With conventional convex preferences, this tangency identifies the preferred affordable bundle.

Write these two conditions clearly

$$1. MRS_{XY} = P_x/P_y \quad 2. P_x X + P_y Y = M$$

Common mistakes to avoid

- Do not confuse an indifference curve with a budget line.
- Do not say every point on the budget line is equilibrium; the consumer chooses the most-preferred affordable point.
- State that the tangency condition applies to an interior optimum; corner solutions can differ.

Revision in one sentence: the consumer chooses the highest indifference curve they can reach with their budget.