

Marginal Analysis

AP Microeconomics | Unit 1 | $MB = MC$, sunk costs, and utility per dollar

Running example. Pizza costs \$3 a slice. The first slice is worth \$10 to you, the second \$7, the third \$4, the fourth \$1.

1. Thinking at the margin

Marginal means additional: one more unit, not the total and not the average.

Marginal benefit (MB): the extra benefit from one more unit. **Marginal cost (MC):** the extra cost of one more unit. Marginal benefit usually falls as you consume more (*diminishing marginal benefit*).

2. The rule: $MB = MC$

slice	MB	MC	total net benefit	
1	\$10	\$3	\$7	buy
2	\$7	\$3	\$11	buy
3	\$4	\$3	\$12	buy (the last one worth it)
4	\$1	\$3	\$10	stop

The marginal decision rule

Keep going while $MB \geq MC$. The best quantity is where $MB = MC$ (or the last unit before MB falls below MC). That quantity maximizes **net** benefit, total benefit minus total cost.

The goal is the largest net benefit, not the largest total benefit: slice 4 adds \$1 of benefit and \$3 of cost, so net benefit falls from \$12 to \$10.

3. Sunk costs do not count

Now the same pizza is an all-you-can-eat buffet for \$20. The \$20 is paid whether you eat one slice or ten, so the marginal cost of a slice is \$0: eat while $MB > 0$, all four slices.

Sunk cost

A cost already paid that cannot be recovered. It does not change with the decision, so it should not affect the decision.

4. Two goods: utility per dollar

With a budget and two goods, spend the next dollar where it gives the most: compare **marginal utility per dollar**, MU/P .

$$\text{taco: } \frac{12}{\$2} = 6 \text{ per dollar} \qquad \text{drink: } \frac{4}{\$1} = 4 \text{ per dollar} \qquad \Rightarrow \qquad \text{buy the taco}$$

Utility-maximizing rule

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} \quad \text{with the whole budget spent}$$

Where students lose points

1. Comparing total benefit with total cost instead of the next unit.
2. Stopping where total benefit is highest, not where $MB = MC$.
3. Letting a sunk cost change the decision.
4. Comparing MU of two goods without dividing by price.
5. Saying " $MB = MC$ " with no numbers from the table.

Now practise it

Theory sticks once you use it. On **sad-academy.com** you'll find practice questions for this exact subtopic in the AP format, and an AI that grades your free-response answers against the scoring guidelines, the way an AP reader would.

sad-academy.com

Data are hypothetical. AP[®] is a registered trademark of College Board, which is not affiliated with and does not endorse this material.