



Were your grandparents poorer?

Prices, the price index, inflation, and how to turn nominal dollars into real ones.

1

Inflation

the price level rises

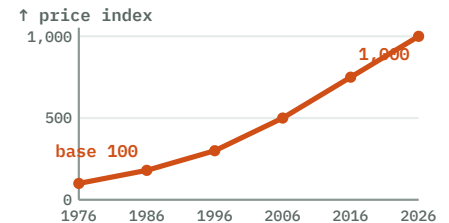
- **Inflation** = rise in the **general level of prices** · measured as a % change
- **Market basket** = fixed list of goods, fixed amounts · Coralia: 10 kg fish + 20 loaves + 10 ferry tickets
- Basket cost 1976 **\$40** → 2026 **\$400** · same goods, 10 × the price
- **Nominal** = dollars of its own time, not adjusted · \$3,000 → \$36,000 = 12 × the dollars, not 12 × the goods

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Price index

CPI · base year = 100

- $\text{index} = \text{basket cost} \div \text{base-year cost} \times 100$ · base year always **100**
- **CPI** = index of what households buy · 2026: $\$400 \div \$40 \times 100 = \mathbf{1,000}$ · 1996: $\$120 \div \$40 \times 100 = \mathbf{300}$
- Coralia, every 10 years: 100 → 180 → 300 → 500 → 750 → 1,000
- Ten-year rises: **+80%** (1976–86) → +67% → +67% → +50% → +33% · line looks steepest at the end, % is highest at the start: higher base ⇒ smaller %



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Inflation rate

% change of the index

- $(\text{new} - \text{old}) \div \text{old} \times 100$ · usually over 1 year · divide by the **OLD** index
- 750 → 780: $30 \div 750 \times 100 = \mathbf{4\%}$ · 125 → 150: $25 \div 125 = \mathbf{20\%}$ (not 25%, not 50%)
- **DEFLATION** index falls, rate < 0 · **DISINFLATION** prices still rise, more slowly: 400 → 500 → 600 → 660 → 693 = **25%** → **20%** → **10%** → **5%**
- Watch out: index points ≠ % · same +100 points on a bigger index = smaller % · a straight line hides a falling rate

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Nominal → real

what money buys

- $\text{real} = \text{nominal} \div \text{index} \times 100$ · in **base-year dollars** · **real value** = buying power
- Grandpa 1976 **\$3,000** = $\$3,000 \times 10 = \$30,000$ in 2026 dollars · Amara **\$36,000** ÷ 1,000 × 100 = \$3,600 in 1976 dollars ⇒ only **+20%** (1.2)
- Ferry captain 1996: $\$9,000 \div 300 \times 100 = \$3,000$ · Kofi: $\$12,000$ (index 300) = $\$30,000$ (index 750) = **\$4,000** ⇒ pay × 2.5, prices × 2.5 ⇒ same

Grandpa 1976	\$3,000
= in 2026 \$	\$30,000
Amara 2026	\$36,000
= in 1976 \$	\$3,600

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Real GDP

deflator

- **GDP deflator** = price index of everything produced in the country · CPI = only what households buy, imports included
- $\text{real GDP} = \text{nominal GDP} \div \text{deflator} \times 100$ · base 2006
- 2006: \$500M (deflator 100) · 2026: \$1,000M (deflator 160) → **\$625M** ⇒ nominal × 2, real only **+25%**

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Winners, losers

surprise inflation

- Inflation higher than expected ⇒ fixed dollars buy less ⇒ **owes** fixed dollars **GAINS** · **owed**, holds cash or fixed income **LOSES**
- Gains: borrower (dive school \$10,500 at 8% vs 2% expected) · mortgage · boatyard debt · Loses: bank with fixed rate · saver · fixed pension · cash box
- **Real interest rate** = nominal rate – inflation · \$1,000 at 10% → $\$1,100 \div 110 \times 100 = \mathbf{\$1,000}$ · 10% – 10% = **0%** (savings only keep up)

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Costs, CPI bias

why it matters

- **Costs: menu** (reprinting prices) · **shoe-leather** (less cash, more bank trips) · **uncertainty** (plan, lend, save) · **deflation** too: buying waits, debts heavier
- Central banks often aim for low, steady inflation, **~2%** a year
- **CPI runs high: substitution** (fixed basket, people switch) · **new goods** (added years late) · **quality** (better phone ≠ only pricier)