Were your grandparents poorer?

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

1 Inflation

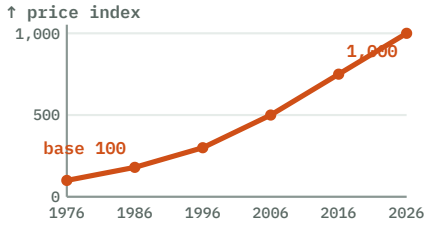
the price level rises

- **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

2 Price index

CPI · base year = 100

- `index = basket cost ÷ base-year cost × 100` · base year always **100**
- **CPI** (consumer price index) = index of what households buy · 2026: $400 ÷ $40 × 100 = **1,000** · 1996: $120 ÷ $40 × 100 = **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 %



3 Inflation rate

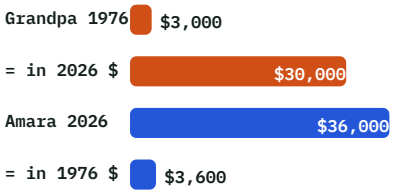
% change of the index

- `(new − old) ÷ old × 100` · usually over 1 year · divide by the **OLD** index
- 750 → 780: 30 ÷ 750 × 100 = **4%** · 125 → 150: 25 ÷ 125 = **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

4 Nominal → real

what money buys

- `real = nominal ÷ index × 100` · in **base-year dollars** · **real value** = buying power
- Grandpa 1976 **$3,000** = $3,000 × 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 ÷ 300 × 100 = $3,000 · Kofi: $12,000 (index 300) = $30,000 (index 750) = **$4,000** ⇒ pay × 2.5, prices × 2.5 ⇒ same



5 Real GDP

deflator

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

6 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 (house loan) · boatyard debt · Loses: bank with fixed rate · saver · fixed pension · cash box
- **Real interest rate** = nominal rate − inflation · $1,000 at 10% → $1,100 ÷ 110 × 100 = **$1,000** · 10% − 10% = **0%** (savings only keep up)

7 Costs, CPI bias

why it matters

- **Costs**: **menu** (reprinting prices) · **shoe-leather** (cash loses value ⇒ less cash, more bank trips) · **uncertainty** (plan, lend, save) · **deflation** too: buying waits, debts heavier
- Central banks (public banks that manage a country's money) 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)