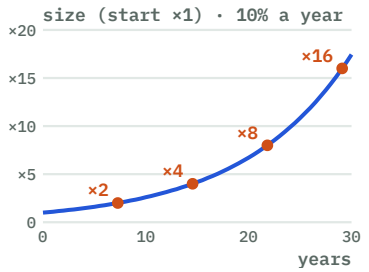
How did China grow so fast?

The rule of 70 and compounding, China's real numbers since 1978, the export-led recipe, catching up and why it slows, and the gains against the costs: 10% a year for 30 years makes an economy more than 16 times bigger.

1 Rule of 70

how fast it doubles

- **Growth rate** = how much bigger the economy gets in a year, in % · 10% → each year ×1.1
- **Rule of 70**: growing `r%` a year → doubles in ≈ `70 ÷ r` years
- 10% → **7** years · 7% → 10 · 5% → **14** · 3% → 23 · 2% → 35
- Practice: double in 14 years → `70 ÷ r = 14` → **r = 5%**



2 Compounding

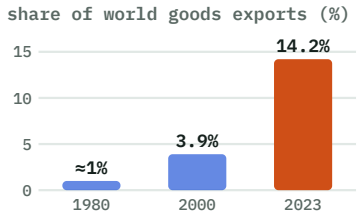
growth on growth

- **Compounding** = each year's % taken of a bigger base → the line bends **upward**
- 10% × 30 years → 30 ÷ 7 ≈ 4 doublings → `2 × 2 × 2 × 2 = 16` → more than **16 times** (exactly ≈ 17)
- Practice: 5% × 42 years → 42 ÷ 14 = 3 doublings → **×8** · adding 5% × 42 = 210% → ×3.1 ×
- 9% × 40 years → 70 ÷ 9 ≈ 8 years a doubling → 5 doublings → **×32** · 3% × 40 years → only ≈ ×3

3 China's numbers

World Bank · WTO

- **Real GDP** = value of what a country makes in a year, price rises removed
- 1978: poor, mostly farming → real GDP growth **over 9% a year** on average since (World Bank) → more than **30 times** bigger · 2nd-largest economy
- ≈ **800 million** people out of extreme poverty (≈ $2 a day or less) · World Bank = international lender, tracks poverty
- Share of world goods exports: ≈ 1% (1980) → 3.9% (2000) → **14.2%** (2023) → ≈ **14 times** · **WTO** = World Trade Organization, 1995, Geneva
- Share = a slice, not the cake · practice: share 1% → 3%, world $2,000B → $8,000B → exports $20B → **$240B** = ×12 (3 × 4)



4 The recipe

export-led growth

- **Export-led growth** = growing by making goods for foreign buyers → factories, jobs, saving follow
- ① **cheap labor** making exports (Lesson 1) ② **special economic zones** ③ high **saving and investment** (money → machines, factories) ④ workers **farms → factories** ⑤ a **cheap currency** → cheap exports (Lessons 5-6)
- **Special economic zone** = area with easy rules for foreign firms → factories, exports · China's first four: **1980**
- Chain: cheap labor → foreign factories, exports ↑ → firms earn, country saves and invests → more machines per worker → output per worker ↑
- Against the recipe: banning foreign firms · permits to move · an expensive currency

5 Catching up

copy beats invent

- Richest countries must **invent** new machines and methods · a poorer one can **copy** → faster, cheaper
- **Catching up** = faster growth of a poorer country as it copies richer ones' technology · South Korea, Taiwan: exports from the **1960s** → China, lower start, bigger scale
- Practice: Palmera $2,000 at 7% (doubles every 10 years) → $16,000 in ≈ 30 years · Coralia $16,000 at 2% → ≈ $29,000 · gap **8 times → ≈ 2 times** (in $: 14,000 → 13,000)
- Why it slows: fewer farm workers left to move → wages ↑ → easy copying done → growth ↓ · 10% → 5%: doubling **7 → 14** years

6 Gains and costs

both sides, no verdict

- `GAINS` poverty ↓ (≈ 800 million) · exports ≈ 1% → 14% · `COSTS, LIMITS` pollution · factory towns abroad lose jobs (Lesson 2) · slowdown as catching up ends
- Supporters: opening to trade and foreign factories used the main strength, cheap labor → poverty fell · critics: costs on people and places; not every country can export more than it imports
- One case ≠ a law: other countries tried similar paths with other results · one year at 10% ≠ thirty
- The lesson explains **mechanisms**, not whether any government's choices were right

Watch out: growth **multiplies**, it does not add · 10% for 30 years = ×17, not ×4 (adding 30 × 10% = 300%) · 70 ÷ r is a rule of thumb → "about" · a share ×3 while the world ×4 → exports ×12 · fast growth now ≠ fast growth forever