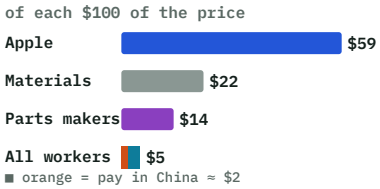
Why does your phone come from three continents?

Who earns what from a phone, absolute and comparative advantage, opportunity cost, specialization and the price that lets both sides gain: two islands, Coralia and Palmera.

1 Value chain

one phone, many countries

- **Value chain** = steps from idea to shop (design → parts → assembly → sale), each in the place that does it at the lowest cost
- iPhone 4 · 2010 · **$549** full price · of each **$100** → Apple **$59** (design, software, brand) · materials **$22** · profits of parts makers **$14** (S. Korea, US, Europe, Japan, Taiwan…) · pay of all workers **$5**, of which China ≈ **$2**
- Source: Kraemer, Linden, Dedrick, researchers at three US universities, 2011 · “Assembled in China” ≠ most of the money stays in China



2 Two islands

absolute advantage

- **Slot** = one block of work, by one team · CORALIA 6 slots · 1 slot = **2 shirts or 1 phone** · PALMERA 4 slots · 1 slot = **1 shirt or 1 phone**
- Whole day → Coralia **12 shirts or 6 phones** · Palmera **4 shirts or 4 phones**
- **Absolute advantage** = makes more of a good in the same time (or the same in less time) → Coralia in **both** · yet both islands still gain from trade

3 Opportunity cost

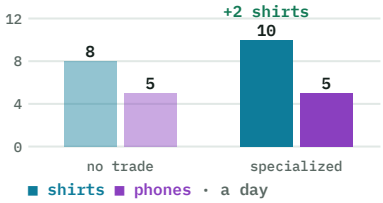
comparative advantage

- **Opportunity cost** = what you give up to get something (Micro 1) · cost of a phone = shirts not made
- Phone → Coralia **2 shirts** · Palmera **1 shirt** ⇒ shirt → Coralia **½ phone** · Palmera **1 phone** (costs in a row = upside down of each other)
- **Comparative advantage** = lower opportunity cost, **not** speed → PALMERA phones · CORALIA shirts · different costs ⇒ each side has one
- **Hours table** (hours for one unit) → fewer hours = faster · `cost of A = hours for A ÷ hours for B` · e.g. shoes 2 h, coffee 1 h → 1 pair = **2 bags**

4 Specialize

more from the same work

- **No trade** (half a day each) → Coralia 6 + 3 · Palmera 2 + 2 ⇒ **8 shirts + 5 phones**
- **Specialization** = each makes what it gives up least for · Palmera **4 phones** · Coralia 1 phone + **10 shirts** ⇒ **10 shirts + 5 phones** = **+2 shirts**, same slots
- Why → each phone made where it costs fewer shirts (1, not 2) · nobody works more



5 Terms of trade

the price of the swap

- **Terms of trade** = price at which two sides swap goods · here shirts per phone · must lie **between the two opportunity costs**: Palmera sells for ≥ **1**, Coralia pays ≤ **2**
- **1½**: Palmera sells 2 phones for 3 shirts → Coralia **7 shirts + 3 phones** · Palmera **3 shirts + 2 phones** ⇒ each **+1 shirt**, same phones (½ or 3 → one side says no)
- **Chain**: different costs → specialize → total ↑ → swap at a price in between → **both gain**

6 Ricardo · limits

old idea, real world

- **David Ricardo** · English economist · **1817** → England and Portugal both gain trading cloth and wine, though Portugal made both with less work
- Lawyer **$300** an hour in court, types 2× faster than assistant (**$20** an hour) → an hour of typing costs her $300, the assistant’s 2 hours cost **$40** ⇒ assistant types
- Left out → **workers** who must change jobs (gain not shared evenly, Lesson 2) · transport, **power**, dependence (Lesson 10) · many goods, many countries, prices that move

Watch out: better at everything ≠ should make everything · faster (absolute) ≠ cheaper in what you give up (comparative) · only **comparative** advantage decides who makes what